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EDITED BY

F. J. S. GORGAS, M. D., D. D. S.

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ARTICLE I.

Notes on Celluloid.

BY J. B. HODGKIN, D. D. S.

Professor of Dental Mechanism and Metallurgy, Baltimore College of Dental Surgery.

The comparative perfection to which this base for artificial teeth has been brought is a matter of congratulation on the part of those of the Dental profession who have been looking to it as a relief from the vulcanite monopoly, or in the expectation of finding in it something intrinsically better than the rubber plates lately so universally made and worn. The beauty of the material, its elegant appearance, its near approach to a gum color, are really advantages so great as to tempt one to overlook any defects that may have been found in its working qualities or in its durability. The former difficulty, it would seem, has been pretty effectually overcome, and the latter, it is hoped, will be found by the grand test of time to be at least equal to the substance it is the rival of—vulcanite. It is worth while to say in passing, that the durability of vulcanite plates seems to have been over-estimated by many, and that a fair average of their life is not probably over five or six years. While a few do last much longer, yet the large majority of the plates that are made soon break down.

The advantages of celluloid over vulcanite, so far as regards the question of mercurial poisoning, are manifest, and need not be more than adverted to. Whether our friends, the homœopaths, will be able to make cases of camphor poisoning out of it, remains to be seen.

Possibly some better solvent, and one in which the solvent itself may enter more solidly into a combination with the cellulose may yet be found,—one possessing the properties of ether, without its objectionable qualities. That we are only on the threshold of discoveries in this field seems highly probable.

It is not likely that the best method of working this substance has yet been evolved, for like all things else, these matters seem to grow slowly, and our knowledge and wisdom do not always go hand in hand. With regard to the preparation of the mould, if the method devised by Dr. McClelland, as applied by him to Rose Pearl, which is only another form of celluloid, were rid of its undesirable features, it would possess advantages over the plaster moulds in ordinary use, until at least good dental plaster becomes the rule and not the exception; for with these metallic moulds a smoothness and finish can be given to the plate which leaves nothing to be done on removing it from the press except to cut away the surplus and polish the edges thus cut. Plaster moulds, however, may, with sufficient care, be made so smooth as to require no finishing, as the celluloid does not sink into the surface of the plaster, as does vulcanite. In cases lately constructed by the writer, the finish of the piece as it came from the flask could not well be improved; plain teeth being used and the wax surface smoothed with the blow-pipe. The gum color was sufficiently good to answer the purpose, and the fact that plain teeth are used, allows an artistic arrangement rarely attempted and not often practicable with block gum sections·

The best apparatus for softening the plate and closing the flask is probably yet to be constructed, but of those so far made all seem in careful hands to produce good results. Few, however, would willingly adhere to the "oil" method, which we believe was the first practiced, with its suggestions of "lard rendering, all over the house, if a more pleasant and equally efficacious plan were presented; and fortunately in celluloid we have quite a variety of methods from which to choose. Glycerin or steam are better than oil in the sense of being more pleasant and agreeable, and the dry process as worked in several different forms is still better in not having any liquids to handle, and in not incurring (as in the steam apparatus, at least,) the suspicion of a risk of an explosion.

Several forms of the "dry process" are referred to above. One only, so far as is known, is patented—that of Dr. R. F. Hunt, of Washington, D. C., which consists of a simple brass oven, large enough to receive the flask, with its screw clamp, and a cover so constructed as to form part of the clamp, and fitting tightly the top of the oven; suitable heating apparatus, a gas jet, alcohol or other lamp being placed under the oven. No thermometer or instrument for registering the temperature is attached, reliance being had on the judgment of the operator, who removes the flask from time to time and tests its temperature by trying the screw and by touching the hot flask with a damp finger, just as the laundress judges of the temperature of her smoothing irons, the "sizzle" indicating the amount of heat present.

Really, while to the careless and unthoughtful, special forms of apparatus and special guards against accident are necessary, with those who are disposed to keep their work well in hand and execute each step thoughtfully and with eyes wide open to results, no special apparatus need be purchased save the flask and screw-clamp. The oven of the kitchen stove or any place where air of a sufficient temperature to soften the plate can be had will answer perfectly well. We have lately had excellent results from closing the flask in a large copper ladle, formerly used to melt lead in, the ladle being set on the gas stove and the heat thus applied. True in this case considerable heat is lost, which in a better constructed apparatus could be economized.

Some, we understand, are using the oil apparatus, minus the oil, with excellent results, an improvement on its original use. No thermometer is used, and indeed it is questionable if this instrument is of much value, for if the operator is present and can see the thermometer, he will be in all probability from time to time trying the screw to see fi the plate is soft—a sufficient guide it would seem. And then too, judging from the fact that of two thermometers possessed by the writer, made to be used with this sort of apparatus, on being immersed in a hot oil bath, the mercury in one stood thirty-five degrees above the other, the conclusion would be reached that the simpler test is as accurate as the more scientific.

Something remains to be said regarding the welding properties of celluloid, and some of its peculiarities, which are deferred until some experiments in progress and in contemplation are completed.

ARTICLE II.

Building on a Part of the Crowns of Teeth.

BY E. L. HUNTER, D. D. S., ENFIELD, N. C.

It sometimes happens that, except in the pulp chamber, there is little or no retention for a filling. Take for instance a pulpless superior central incisor with the approximal, half the labial and two-thirds of the lingual walls gone. After the usual preparation, enter an inverted cone bur in the pulp chamber wall, beyond the cervical wall, and give it the shape of the bur; then take a piece of eighteen-carat gold wire, about the size of a No. 1 or 2 bur, and swell the end to correspond to the shape of the bur; bend it, so that when inserted in the pulp chamber its outer portion will intersect the point you wish occupied by the corner to be made. Now wind an unannealed cylinder on the swell end and insert wire and all into the chamber, and with smooth points and mallet condense the cylinder, holding the wire firmly in position and adding small pellets until the chamber is entirely full. It will be seen that within this chamber is the weight, on the cervical wall the fulcrum, the cutting edge the lever, and therefore that the first part of this filling must be as perfect as possible. To make this filling absolutely immovable, it is necessary to make it impossible to withdraw or move the wire where it has been planted. Such being the case, when the subsequent part of the filling has been built, the wire cannot move without crushing that part of the artificial tooth between the wire and the cervical wall. The wire should have threads cut upon it, or abrupt protuberances at several points, and be cut off at the thirty-second part of an inch short of where you wish the corner of the work. The remainder and bulk of the work, being completed with the care, and under guidance of principles usual in building, making close adaptation, will be found to have great strength.

If the case should present a long lever, that is a long tooth, with a narrow neck and wide cutting edge, it would be well to interfere with the power of leverage, by inserting a retaining screw in the body of the tooth somewhere between the cutting edge and the cervical wall.

We have used and tested this method, and we know it to be good, and offer it to those to whom necessity may never have suggested the idea.

ARTICLE III.

Letter from Dr. Gunning.

The following is the closing portion of a letter dated Nov. 27th, 1874, to the Dean of the Faculty of the Maryland Dental College:

"I allowed my name to be enrolled as Regent in the belief that your college was organized to advance the true interests of the profession, and, as inseparably connected therewith, the welfare of the public, and I accepted the honor of presiding at the Board in the trust that with five Regents residing in the immediate neighborhood, fitted so eminently to a wise guidance of administration by their character, experience and culture, such counsels would prevail with the Faculty that its course would be steadily forward. I will not conceal my disappointment that this hope does not appear to be realized, and I ought not to occupy a position which may be misunderstood. I must, therefore, resign, with regret, all official connection with the Maryland Dental College."

Very respectfully yours, &c.,

Missouri Dental Journal. THOMAS BRIAN GUNNING.

In answer to several letters concerning the above and the "Protest" published in pamphlet form by Dr. Gunning, we desire to inform our correspondents that the Institution referred to is *not* the old "Baltimore College," but a new one started a year or two ago; and that the only injury resulting to the "Baltimore College" has been in the mistakes of those who are led to believe the institution referred to is the old Baltimore College. We do not desire the "Baltimore College" to be confounded with the one in question.

ARTICLE IV.

Editor American Journal Dental Science:

DEAR SIR—I notice in the report of the second Annual Commencement of the Maryland Dental College, published in the *Cosmos*, April number, the number of matriculants is reported at twenty-four—(24.) While I have no disposition to find fault with the Faculty of that Institution in their efforts at advancing the standard of Dental Education, yet a due regard for facts prompts one to criticise this report, so far at least as these figures are concerned. It is well known to all in Baltimore who are at all familiar with the details of the workings of the Maryland Dental College, that the number of students in actual attendance upon its lectures during the past Winter was seven—(7.) It would seem strange that the other seventeen (17) who matriculated did not attend the lectures. Did they, after paying the fee, see fit to go elsewhere?

Really a college with twenty-four (24) matriculants and seven (7) students in attendance would seem to need looking after by its Board of Regents.

There are some other facts with regard to this College, which place it in an invidious light before the Dental public, but of these hereafter.

Very truly,

* * *

The May number of *Cosmos*, corrects the report in the April number, and gives the number of matriculants as 7, instead of 24, as was incorrectly stated.—Ed.

Susquehanna Dental Association.

The Annual Meeting of this Association will be held at Scranton, Pennsylvania, on Wednesday, May 12th, 1875, at 10 o'clock A. M. Session to continue to two days. Orders for Excursion Tickets ean be had by applying to

W. H. Hertz, D. D. S., *Rec. Secretary*,
Hazleton, Pa.

Illinois State Dental Association.

The Eleventh Annual Meeting of this Association will convene at Ottawa, Illinois, on Tuesday, May 12th, 1875.

A cordial invitation to be present is extended to all progressive Dentists.

Charles E. Koch, D. D. S.,
Secretary Ill. S. D. Association.

Kentucky State Dental Association.

The Annual Meeting of this Association will commence on Tuesday, June 1st, 1875, at Lexington, Ky.

A cordial invitation is extended to all dental practitioners to be present.

DR. B. OSCAR DOYLE, *President.*
CHAS. E. DUNN, *Secretary.*

SELECTED ARTICLES.

ARTICLE V.

Gold.

BY G. V. BLACK, JACKSONVILLE, ILLINOIS.

Gentlemen of the New York Odontological Society:

Your committee have seen fit to invite me to prepare a paper for your Society, naming as the subject, "Gold." While I have an ever-wakeful interest in the welfare and progress of my chosen profession, in the study and practice of which I am spending the best energies of my life, and am always willing to contribute my mite when called upon, I cannot but feel that the committee, in making their choice, have passed by very many men who are far better able both to interest you and benefit the profession. I will nevertheless attempt to say something of the laws governing the welding of metals, which I hope may not be without interest and substantial benefit to some of you in the development and management of that wonderful property in gold, as we use it in our daily practice.

Leaving the history of the development of our understanding and use of this property of gold to those who have preceded me, I will simply remind you that the great mass of dentists now in practice depend upon the welding property of their gold for the permanence of their work. This though is sufficient to show that too great an importance cannot well be attached to its study. In this study we have to deal, as you will presently see, with the most subtle and hidden chemical affinities known to science; and in order that we may start at the best point to gain an understanding of these forces, we will refer to some familiar experiments.

If a piece of fine platinum sponge be prepared, strongly annealed, and allowed to cool, and then held in a jet of hydrogen gas, it will be heated to redness, and the gas ignited. This result is explained in this wise. When the platinum sponge is held in the jet of hydrogen, the gas condenses upon the metal and within its pores with such great rapidity that, its latent heat becoming sensible heat, the sponge is heated to incandescense and the gas ignited.

Again, if we introduce the prepared sponge into a mixture of hydrogen and oxygen gases, the mixture will be exploded; but if the spongy platinum be mixed with some substance to modify the rapidity of the condensation its pores will fill with water. In this case both the hydrogen and oxygen are strongly attracted to the metal; and in condensing upon it, their affinities are so excited that they combine and form the water that fills the sponge. In neither of these instances does either of these elements unite with the platinum, or change it in any degree, while they cannot unaided form a chemical union with the platinum; yet there is a subtle affinity existing between them which causes these elements to condense upon the surface of the metal, and adhere with great tenacity until this attraction is overcome by a powerful heat. By a long course of experiments we have shown that similar phenomena, but less marked, take place with all the noble metals, and are almost certainly found with metals of the baser sort, as a preparatory step to the formation of oxides, etc.; the metals differing from each other in attracting this gas, or that, more strongly than another.

In order to prove that this is true of gold, roll several sheets of pure gold foil into a loose rope, anneal, and suspend them in sulphureted hydrogen gas for a few hours, after which suspend them in ammoniacal gas, or drop them in the liquid ammonia, and carefully dry without heat. Now re-anneal this rope, holding a cold porcelain slab directly over it, and a sublimate will be collected, which proves to be sulphuret of ammonium. If this experiment be varied by substituting chlorine for the sulphureted hydrogen, a much larger amount of sublimate will be collected, which is the chloride of ammonium. This case is chemically identical with the experiment with the platinum in which the water is formed, the only difference being in the elements employed. I might give you a greater variety of these interesting experiments with gold, and different gaseous elements, or with other metals, but, as our space must be limited, this must suffice as illustrating the laws of this exceedingly subtle affinity, which we have found to be as varied and complex as the more prominent and complete affinities of the elements.

Now, I wish to draw your attention to a remarkable circumstance that unerringly accompanies the last and similar experiments. When the rope of gold was annealed preparatory to being placed in the sulphureted hydrogen gas, its welding property was developed, and it might be welded perfectly and solidly together; but when removed from that gas, that property has entirely disappeared. It will not weld any more than so much tissue-paper. The same thing happens if the gold be placed in a bath of ammoniacal gas, hydrogen, illuminating gas, phosphorated hydrogen, sulphurous acid gas, and a great variety of others,—in fact in any gas that is attracted to and condensed upon gold, the effect being more or less perfect according to the power of this peculiar affinity in any particular case.

Now, why the loss of the welding property? The answer is simple—the gas is condensed upon, and covers the surface of the metal, and prevents its particles from coming into actual contact, or within the sphere of their mutual attraction. It cannot be seen by the mortal eye, nor be detected by the ordinary tests for the purity of the metal, but such experiments as those given above reveal it unerringly, and render it appreciable to our senses. After close experimental study of these phenomena with gold and other metals, we believe ourselves warranted in saying that all metals are welding metals, whether cold or hot, if the particles come in contact. Therefore, any metal that is capable of being made actually clean, its surface free from combinations with or condensations of other substance, will readily weld. In other words, if the particles of a given metal are brought into contact, they cohere. This is the secret of the success of using fluxes in soldering and welding by heat. By using a substance that will dissolve and remove oxides formed, and exclude that element, yet adhere to the metal with but little tenacity, so that it is easily thrust aside by the blows of the hammer or the superior affinity of the flowing metal, the particles come into contact, and union results. It also explains those cases of accidental cold or nearly cold welding, causing the sudden stoppage of machinery, especially heavy stones, buggy-wheels running upon iron axles, and so forth. I have examined a number of these cases where a very perfectly weld had taken place over a considerable portion of the surfaces in contact. The attrition had worn away the prominences, and perfectly cleaned the surfaces, until a considerable extent of surface had come into actual contact, and a weld was the result.

I have also been able to produce this result in the machine shop, and thus study its phenomena. This mode of cold welding with iron and steel is, however, entirely impracticable for ordinary mechanical purposes, and this must evidently be the case with any metal that condenses oxygen, for the reason that that element is always free in our atmosphere. This property of condensing oxygen effectually prevents our using the welding property of platinum foil for the purpose of filling teeth, for it requires a white heat to clean it perfectly, and before it is cold the oxygen of the air begins again to condense upon it, obscuring its welding property. If, however, the platinum foil should be covered with ever so thin a lamnia of gold but sufficient to protect it from oxygen, I have no doubt but that it may be readily welded, though I have never tried it. It would probably be necessary to work quite rapidly, so that the surface of the platinum should not be long exposed to the air; otherwise the weld would certainly be lost. The secret of the welding of gold, cold, lies in the fact that it does not attract or condense oxygen ; and nitrogen (the other element of our atmosphere, which some poetical chemist has characterized as " that slothful element that never knew a passion, neither of hate, nor yet of love") is, I believe, not attracted by any of the metals. Therefore, gold does not loose its welding property in pure air, or if so, it is only after many days, and then, we believe it is always from the condensation of carbonic acid gas, which is always present in small quantities, and is attracted to gold quite feebly, but with sufficient power to remove the welding property promptly if placed in the pure gas. Therefore, gold left exposed to the ordinary atmosphere loses this property in a few days ; but it may be retained for a great while by very close wrapping. The effect of annealing, so far as the development of the welding property is concerned, is simply the cleansing of its surface by driving off any of the volatile gases that may be condensed upon it. This is a very different effect from that of softening gold plate by annealing. The softened plate is not again hardened by exposure to the air, or any of its impurities, while the welding property is so lost.

The welding property is not necessarily lost by hammering, or even burnishing, while its softness is inevitably lost.

Therefore, these two effects of heat are entirely different in their nature; the one cleans the surface, while the other probably causes a repolarization of the atoms. I should probably state that, by hammering gold, the power of the weld is weakened in proportion to the weakening of the general cohesion of the atoms of the mass. It is well known to workers in gold that it may be hammered till it becomes very frail and brittle; and its particles, having lost partially their cohesion or attraction for each other, will of course have lost in the same degree their attraction for fresh masses, and the weld will be weakened to this extent. It is therefore injurious to continue malleting our fillings after all spaces are closed.

These gases, in escaping from our gold in the flame of the annealing lamp, often cause a peculiar appearance which most of you, no doubt, have occasionally noticed. I have often heard operators say that their gold smoked, or that it colored the flame of a lamp. The escape of some of the gaseous elements, and combinations in a pure alcohol flame, are extremely beautiful, among which chlorine deserves especial mention. These phenomena should be observed in a dark room We have so far spoken of these condensations as being readily driven off by heat, after which the welding property is completely restored. With gold, this is true of all but two groups, those formed from sulphur and phosphorous. Any gas into which either of these elements enters is liable to become so rigidly attached to the gold that it cannot be perfetly removed by annealing, and the weldering property of the foil cannot be redeveloped. Therefore, if we would keep our gold in condition to use the welding property, it must be protected from these elements in all their forms. Simple close wrapping does not always suffice, for I have known a number of instances of gold being ruined when quite closely wrapped; and, again, it may be much injured while being prepared for use, or even while on the operators tray; for it sometimes happens that these results are produced quite suddenly.

Though, as these gases are usually found diluted in the air, it generally requires some time for them to become so firmly fixed as to make the lss of the welding property irreparable, yet every operator should be (as I suppose most of us are) especially careful that these gases are not generated in or about his office, from decaying blood in a neglected spittoon, decaying flesh, old teeth, badly arranged sewer connections, etc.; in a word, he who handles gold should be *clean*. Especially would we warn operators to have a care in the use of friction matches; for every match that is lighted evolves both sulphur and phosphorous fumes, and gold is often injured by them, even when its welding property is not wholly destroyed; especially is this the case when a small portion of phosphorous happens to be detached from the match and lodged upon the wick of an alcohol lamp, which being surrounded by the flame, does not at once burn, but slowly exhales its fumes to light upon the gold as it is being annealed; for the fumes of this element will attach themselves to gold when it is very hot, especially when just taking the form of phosphoric acid, which is not volatile at the annealing heat. That the gold may be injured so as to endanger our work when the welding property is not entirely destroyed, we can probably make clearer by referring to some things that are more patent to the eye.

You have doubtless all noticed that, when a bright surface of any metal is corroded, it almost uniformly happens that the first traces of rust appear at small points, which gradually spread until the whole surface is covered. Now, just the same thing happens in the condensation of the gaseous elements upon the metals, and thus it happens that the welding property is first lost in little spots, while the rest of the surface will weld. This may be proven by close examination of the gold itself as to the welding at different small points of surface; and also by closely watching it during the condensation of those elements that discolor it. This phenomenon may be seen by exposing the gold to ordinary illuminating gas, or others of the carbon group. This is sufficient to show us that when these condensations take place slowly they tend to radiate from centers, which, in some degree, remind us of the points of commencing crystallization. This phenomenon is the one of great danger to us in using gold in filling teeth, for if the welding property is entirely removed, we will not use it; but if most of the surface is in fair condition, we are apt to proceed, though we may even notice that some points do not adhere well, and thus turn off fillings that are imperfect, perhaps to mortify us in a few months or years with their rough surfaces and ragged margins. If gold is to be welded at all, it should be perfectly welded, so that if we take a sharp chisel and pare off a shaving, it will not break or crumble, but will curl up as one pared from the ingot, which is always easy if the foil be in perfect condition. If it is to be used soft, let it be actually non-welding, and each portion be so placed as to be held in position by another portion by wedging, as we used to do in years gone by; for then we know what we do, and can depend upon the result, while, if we attempt to make it weld, and fail, disaster must follow.

Now, as to the protection of gold from these evil influences,—close care in keeping it well excluded from the air is very generally successful, and the effect of such care has been long understood, and practiced with good results. Notwithstanding this, the remark, that "my gold is not working first rate to-day," is often heard, and it has long been understood that atmospheric changes had something to do in the matter. Just what those atmospheric changes may be which cause our gold to work badly to-day, and, passing away allow it to work well to morrow, is not yet fully understood; for the condensations of which we have spoken do not pass off of themselves. True, the effects of acid compounds are neutralized by alkaline compounds; the affinities in this case being the stronger, the attraction to gold is overcome, which accounts for many changes in condition; yet, in my experiments of leaving gold in the open air in different changes of weather, I find it difficult to explain all the variations of condition in this way, and there are grounds for supposing that ozone may have something to do with it; but this peculiar substance—or state of oxygen, if you prefer the phrase—is very difficult to experiment with, and my efforts have not been satisfactory. It seems true, however, that ammonia will protect gold from all those gases into which those elements which produce permanent injury enter; partly, perhaps, by its previous occupancy of its surface, but principally by combining with them to form harmless salts. Therefore, so long as the gold drawer is kept scented with ammonia, the gold is safe from all harm, and will work each day equally well, no matter what the weather or condition of the atmosphere. This fact I have had occasion to put to the severest practical tests. About eight years ago I arranged a chemical laboratory adjacent to my operating-room; classes recited on certain evenings, and a great variety of experiments were performed for their benefit. Every now and then I found that the welding property of my gold had disappeared, and finally suspected that fumes from this laboratory had some connection with the mischief. I set about an investigation. And a few experiments in exposing gold to this gas, and that with effects that surprised me at every step, awakened an interest in the subject which kept my spare hours engaged for many months, which developed the facts and theories given here, and in a paper presented to my own State Society in the year 1869, and published in the July number of the *Missouri Dental Journal* of that year; also republished in the *Dental Times*, and *American Journal of Dental Science*, somewhat later in the year, to which those wishing details in regard to performing these experiments are referred. Now, after this investigation, classes continued their recitations as before. My gold-drawer was kept scented with ammonia, and no more gold was injured. We had discovered the true source of trouble, and a successful remedy that has never yet failed us. This ammoniated gold is also, in my opinion, a most excellent soft gold. It is perfectly non-adhesive, and for a number of years I have used it for packing against frail margins, and other points where I desired perfectly non-adhesive foil, and find it works admirably and with perfect certainty. The ammonia is perfectly driven off by a moderate heat, and the gold thus becomes perfectly cohesive. By this method of manipulation, we have our gold non-adhesive or adhesive at will. I have observed very closely to discover any objection to this use of ammoniated gold, but have found none in six years' use of it. Besides this, all non-adhesive gold is made non-adhesive by chemical manipulation, and I prefer to know what I am using, though I do not pretend to say that other non-adhesive foils may not be in every respect as good as the ammoniated. I had intended to say something of the liabilities of failure in making perfectly tight margins with cohesive gold, but my paper is too long already. I will therefore close, regretting very much that I am not, at this time, able to be with you.—*Transactions of the New York Odontological Society.*

ARTICLE VI.

The Eye Tooth and the Eye.

BY DR. JAS. CAMPBELL, ST. LOUIS.

Read before a Physicians' Club.

In all popular legends or common beliefs we may generally find a germ of truth, if they are examined carefully.

It is a fact, fixed in the minds of most people, that there is a direct connection between the "eye tooth" and the sense of vision. That with the loss or injury of this tooth, there is a corresponding injury to the sight. This is one of the popular beliefs, and one upon which little has been said by way of explanation.

It is difficult for the anatomist to trace out, or the physiologist to find any direct connection between the nerve of special sense that gives vision, and the ordinary sensitive branch of the trifacial which supplies the teeth. Yet many facts connecting the two seem to argue well for the popular belief.

Cases where irritation or disease of the canines is accompanied by deterioration, and sometimes even temporary total loss of sight, are by no means rare. All of us are cognizant of such cases. In our journals they are constantly appearing or reappearing as phenomenal and strange, and related as cases of interest. And the connection is not accidental, but the relations of cause or effect are so well established and admitted that we need not stop to consider it here.

Let us briefly examine the facts so established. It is the every day observation of the dentist to find pain in the lower diseased teeth, associated with severe pain in the upper and sound teeth of the same side. When we consider the manner of distribution of the great trifacial, we can see no inconsistency in explaining this by "reflex-action," though the filaments of this most sensitive of all the nerves. And it is convenient to dismiss it thus. But the gap between the eye, that is its visual function, and the sensitive nerves supplying the teeth is wider, and we cannot so conveniently step across.

We are taught to believe that each system of nerves has its own special function. That light affects only the optic nerve; sound the auditory; sensation the sensitive, etc.; but the connection between the irritation of the sensitive dental branch of the fifth pair and the eye remains as a fact, and we must examine their relations as best we can.

It is true that the first or ophthalmic branch of the trifacial is distributed to the eye and some of the surrounding tissues; and the same theory of reflex-action, which associated and explained the connection of the upper sound teeth with the lower and diseased teeth, might, with equal reason, be applied to explain the connection between the first and second branch of the trifacial, as between the second and third branch. And were the connections in the cases related, those of associated pain or irritation, it would be easy to so dispose of it, and cases of this kind are constantly recurring; and many dismiss the subject thus, without further thought. But unfortunately for this theory, the ophthalmic division of the fifth nerve has little, if any direct connection with the sense of vision, it merely supplying the parts to which it is distributed with ordinary sensibility. The reverse was until recently advocated; for experimenters and authorities on the subject found that division of the fifth nerve or its ophthalmic branch was followed by injury to the sight and a diseased condition of the cornea; hence it was supposed the fifth nerve, in addition to its sensitive office, must have a direct influence upon the nutrition of the eye, as also upon its functional activity. But more careful observers found that when the division of the fifth was made behind the point where the sympathetic joins with it (on a level with the casserion ganglion,) vision was not affected. And the experiments of Snellen and others have conclusively proven that the corneal ulceration and degeneration of the parts which follow the division or paralysis of the fifth nerve depend, not directly, but indirectly upon that fact, and that it may be prevented, if the eye is externally protected from external irritations; that is owing to the insensibility of the parts which follows division of the fifth; the faithful sentinel sensation being gone it does not feel, and hence fails to resent external irritation, which soon causes the changes in the corneal tissues.

But in the cases related of failure of sight, depending upon diseased teeth, the external eye is reported as presenting no evidence of abnormal change; and there is little or no pain accompanying the gradual fading of sight. Of necessity the connection must be through nerves, for without nerves there is no activity. From our brief examination of the fifth nerve we see that it is necessary to look to another channel through which the influence is transmitted. And thus we turn to the great sympathetic for a moment.

The sympathetic, owing to natural obstacles which stand in the way of experiment, is comparatively little understood, but we know it to be the great nutritive system, and that its filaments accompany and have much to do with regulating arterial activity. The fifth pair is connected, in different parts of its course, with a number of small ganglia of the sympathetic. The ophthalmic ganglion receives a sensitive root from the opthalmic division of the fifth. A small sympathetic filament from the ophthalmic ganglion penetrates the optic nerve with the arteria-centralis retinæ, which supplies the retina. Now as division of the fifth nerve affects the sight only when it includes fibres of the sympathetic, it would seem reasonable to suppose that it is through the sympathetic that the sight becomes involved.

The conditions necessary to vision, unobstructed dioptric media (cornea, lens, etc.,) through which external impressions may pass ; a normal condition of the retinal nervous expansion to receive such impressions; ability of the optic to transmit the impressions so received; and finally condition of the sensorium to recognize impressions so conducted,—and thus explanation of any variation in sight must be sought in a defect in any one or more of these links. In the cases under consideration, the dioptric media are reported as unaffected, nor can we think that it is the sensorium at fault ; hence we may narrow the affected parts to the optic nerve and its retinal expansion.

We have now reached a point where reasons are in order : but although we have traced the subject this far, almost to warrant a rational conclusion, just here a great obstacle stands in the way, which prevents, for the present, a more definite answer, that is, in none of the cases presented has a careful ophthalmoscopic examination of the inner eye been reported. This is of vital importance and would decide many things. Without it no one versed on the eye would attempt to decide so important a question.

Experiment proves that a division of the sympathetic fibres causes vascular congestion of the parts to which they are distributed, which may last for several weeks; and also that direct irritation of these fibres causes the reverse effect. Either of these conditions would affect the sight. Is it then owing to over-vascularity of the optic nerve and retina, as would be caused by *division* of the ophthalmic, or the reverse condition like that caused by *irritation* of its fibres.

We may ask is this connection possible? Without at doubt it is, and can be verified by analogous nervous reflex-action in other parts of the body. Disgusting sights or odors may cause nausea; may hasten or retard menstrual flow; may induce premature delivery. That is we have many evidences of reflex-action from sensitive points through the cerebro-spinal and the sympathetic system to the different organs and distant parts of the body. Thus the path of transmission is clear from the eye to other points and organs of the body; and for a like reason the reverse must be so.

The sight may be affected by many and varied causes, some clear and others obscure. And quite an exceptional degree of diagnostic skill is requisite to differentially distinguish many of its variations. And hence when the competent oculist has searched in vain for a hidden cause let him not forget to examine the teeth. And the dentist should also remember that it is very possible for diseased teeth to co-exist with impaired vision, with not the slightest connection between them; that this peculiar state is indeed quite exceptional, and occurs in only a limited number of cases.—*Missouri Dental Journal.*

ARTICLE VII.

Artificial Teeth on Protruding Gums.

BY W. E. DRISCOLL, BEDFORD, INDIANA.

All dentists have been annoyed with cases where the anterior part of the superior maxilla protrude so much that the most carefully adjusted porcelain gums or plain teeth can be easily detected as to their artificial character.

I need not remind the dentist (or "mechanician") how unsatisfactory such a result is to him or his patient. The remedy which I now suggest may have been tried by others, but they have failed to give their brethren the benefit of their experience so far as I know. And if I did not feel it a duty to give this to the profession, I am sure I have no other motive in claiming attention. The method is much more practicable and satisfactory than may seem from the description I give, which is as follows:

If the temporary set can be ready to place in the mouth within twenty four hours after the teeth are extracted, proceed in all respects as usual until the model is ready for the reception of the teeth. Select plain teeth somewhat larger than usual for the six anterior ones, and let them *into* the model exactly where the natural ones stood, say at least one-fourth of an inch when the gum is very prominent. All the teeth, posterior to these six, to be set as usual and the plate finished up and placed in the mouth as soon as possible, when it will be found that the six front teeth go so far up into the gums that they do not become uncovered by any subsequent shrinkage of the gums or alveoli. And cannot, if properly selected and adjusted, be detected at conversational distance, from natural teeth, something that cannot be truly affirmed of many sets of artificial teeth even in the most favorable mouths, and *never* in mouths where the gums protrude.

Sometimes I extract all except the six front teeth, and wait for the gums to shrink perfectly. Then take an impression, before extracting the front teeth; from the model cut off the plaster teeth, and in their places sink the plain, artificial teeth one-fourth of an inch beyond or deeper than the margin of the gum, then place the back teeth in position in the usual way, wax up and finish. When the patient comes for the plate, extract the remaining six front teeth and place the plate at once into position. In this way but one plate is needed, as the gum cannot shrink from the teeth.

If one or more of the front teeth have been out until the alveoli have closed, then place the plain teeth as usual in such a case, and the remainder as above directed.

When a temporary set must be replaced by a permanent one, the front teeth can be set in the same depressions that were occupied by the temporary ones. I never extract for a partial set of front teeth now, until the plate is made and ready to be placed immediately in the mouth before any swelling or healing can take place. In this way the patient is relieved of the necessity of going an hour without the teeth. This, however, will be a great objection with those who would like to impose all the inconvenience and trouble possible upon those who elect to have artificial teeth instead of having their old shells filled. But like some other changes time is bringing, I do not know what is to be done about it.

If any one should hesitate to place the artificial teeth in the sockets of the natural ones from fear of subsequent irritation or retarded healing, I will say I have had no trouble of that kind in an experience with the plan of two years or a little over. If the front teeth are decayed even with the gum, then set the artificial teeth a little deeper in the model than if not so decayed, and use the pod beak root forceps in extracting and cut the process over each root uniform with its fellows.—*Dental Register.*

ARTICLE VIII.

Treatment of Burns and Scalds.

The first step is to remove the clothing from the patient. As rest is all-important, this should not be done by the old plan of taking it off piece by piece, but by removing it by a few skilful cuts with a knife or scissors. The patient should then be instantly wrapped in a blanket, or blankets, or large masses of cotton, if at hand, so as to create heat, and thus re-establish the circulation.

Patients frequently exhaust themselves by their outcries, and to guard against the depression of nervous force brought about by this cause, anæsthetics should at once be employed. Chloroform or ether should be administered in sufficient quantity to induce partial, or, if necessary, complete unconsciousness. If these agents are not at hand, large doses of opium should be given. This is all-important, as the patient must not be allowed to suffer if we wish to conserve the powers of life. The dressing should be made while the patient is in this state.

Carron oil is utterly useless, if not injurious. Of all the oils, linseed, in our opinion, is the worst, as it is the soonest to be absorbed by the atmosphere, and become dry. In cases of bad scalds of children, in which a large part of the body is involved, we know no dressing so good as a bran bed, that is, a bed of bran, in which the patient may lie, and be entirely covered with a thick investment of the same. This dressing has the advantage of not requiring change, for each day, as the moist particles fall off, they can be replaced with fresh bran without disturbing the patient. One of the severest cases of scald we ever met, recovered by this treatment.

A great deal of harm is done to patients by frequent dressings, and any method that obviates this is most desirable. Patients frequently are exposed for hours to the action of the air, suffering unnecessary pain, by the old and tedious process of dressing. The air itself does no injury, but the extreme hyperæsthesia of the skin produces a state of nervous tremor which leads to exhaustion. Any one who has seen a case of hydrophobia can readily understand this condition of skin hyperæsthesia.

In burns of the extremities, there is no immediate application so serviceable to relieve pain as hot or cold water, and, strange to say, they act equally well. If the appliances are at hand, the cold bath as practiced by Hebra is the best. Those who have visited his wards in Vienna, and seen his treatment of burns by a bed made of straps, in a cold bath, can bear witness to the successful and scientific character of this procedure. For small burns, warm water acts admirably.

We have said before, that anæsthetics should be employed in all burns of an extensive character, but, before their effect is allowed to pass off, applications should be made to produce anæsthesia of the parts affected. We have heretofore used for this purpose a solution of Labarraque's chloride of soda, of the strength of an ounce to a pint of water, adding two or three grains of morphia to the solution. This has generally given great relief to the patient—indeed, in a short time, destroying all the extreme sensibility. Carbolic acid has been highly recommended as a local anæsthetic, and it may be possible that a solution of it in water, in combination with morphia, might act still better.

After a free application of either of these solutions, the parts may be thickly covered with cotton batting. This helps to counterbalance the chilliness, and gives a comparative degree of comfort.

In superficial burns, of a limited extent, nothing is required but simple cold water dressing.

Brandy should not be administered whenever opium or ether can be obtained, as it remotely exercises a depressing influence. Strong hot coffee is the best drink that can possibly be given to counteract nervous exhaustion, or remedy the effects of shock. If brandy is given at all, it should be given with coffee. All earhy applications such as chalk, calaminaria, etc., should be avoided, as they are not only therapeutically inert, but may interfere with the process of restoration.

Local stimulation, such as the application of turpentine, or a solution of nitrate of silver, as practiced at St. Bartholomew Hospital, is no doubt proper treatment in the second stage of burns, but as this belongs more especially to the domain of surgery, we forbear to discuss it, as well as the treatment of the after consequences of burns, such as ulceration of the bowels, particularly of Peyer's glands, congestion of the lungs, cicatricial contractions, etc.

In conclusion, we will briefly sum up the recommendations before suggested:

1. Remove the clothing by cutting it from the body.
2. Wrap the patient in blankets.
3. If the pain be excessive, administer chloroform, ether, or large doses of opium, and let the necessary dressing be made while the patient is in a state of partial or total insensibility.
4. Produce anæsthesia of the burned or scalded parts by the application of a solution of carbolic acid and morphia. (This solution can be made in almond or olive oil.)
5. After this, wrap the patient in masses of cotton batting.
6. Avoid brandy, and give coffee as a stimulant.

If these simple rules be followed, much suffering may be alleviated, and many a life saved, which otherwise would be lost by the ignorance and mismanagement of attendants. —*Dr. John Morris, of Baltimore, in Sanitarian.*

ARTICLE IX.

Lancing Gums.

On this subject Dr. Charles E. Buckingham writes as follows:

The let-alone system of treatment is good; in very many cases it is best; but it is not always the best. The relief afforded by a free incision through the gum in some instances in which there was acute pain, has, under my observation, been more marked than that afforded by any other operation that I ever saw. The tooth, it is true, in the very great majority of cases, finds its way through without difficulty to the child.

The first indication to the mother whose child has always been nursed, and never fed, is often the feeling of an incisor against her nipple. In some cases, where a proper plan of feeding has been followed, there is as little indication of trouble during dentition. Occasionally when the child is nursed, more frequently when it is fed, and often when it is improperly fed, the little one apparently suffers pain in the mouth, in the head, and in the bowels, whenever a new tooth is about to make its appearance. In another class of badly-fed patients there is always loss of appetite at this time, with sleepless nights, nausea, and vomiting. In others cough comes on, which only exists then, and for which auscultation gives no explanation; and the little patient's sufferings are augmented by "hive syrup," squills, and other nauseants, which give no relief, and by "Mrs. Winslow's soothing syrup," and other narcotic drugs, which stupefy but do not cure.

There is still another class, consisting mainly of improperly-fed children, who have convulsions, sometimes slight, it is true, and sometimes fatal. There is no disturbance of the nervous system, so far as I know, which may not exist in the teething child, and none which may not be aggravated by improper food. Indeed, the time of dentition is the time when by far the greatest number of deaths take place among children, whether the immediate cause be in the head, the chest, or the abdomen.

There are two common notions among maiden ladies, who are often the advisers of mothers younger than themselves; these notions are the source of very great suffering to babies, and occasionally the cause of death. They are, that cutting the gum is very injurious, because "it may callous over afterwards, and become so hard" that the tooth cannot get through so easily as if let alone; and secondly, "that the child may bleed to death" after the operation.

To the first of these the reply is, that no union of the gum, after it has been cut, will ever be any firmer than the gum itself was before it was cut. Cutting the gum may be as great a relief to an obstruction as when an incision is made over a bullet, a piece of bone, a splinter of wood, or a fragment of needle beneath the skin, and the system is trying alone to help it to the surface. More than this, the tooth is not only below the mucous membrane of the gum, but it may be within the sac in which it was formed, and which the force of nature is trying to perforate. If this covering be once cut across, its union (if it ever unites again) will be less perfect than before, and the patient's suffering will be relieved. Suppose the gum should heal after the incision, and the child's sufferings should recur, that is not a good reason for withholding relief now. And if it should suffer again, it can be relieved a second time, and even a third time. I never saw the case in which, if the gum lancet went well through, and was felt upon the surface of the tooth, there was any trouble with that particular tooth afterwards. It surely never could retract, and become deeper in the jaw than before.

The first effect of the incision is the relief of local pain by the oozing of blood. This is more particularly the case in those instances in which the gums are dry and hot, and there is no secretion from the mucous follicles nor from the salivary glands. An incision simply through the mucous membrane is followed by blood, and that by saliva in a very short time, giving great temporary relief; but if the lancet is felt to graze the tooth through the whole length of the incision, the relief is more than temporary; the immediate covering of the tooth never unites again, the growth of the tooth and the elasticity of the tissue preventing that process. If the offending tooth be a molar, a crucial incision is better than a longitudinal one. The relief is often so great from gum-cutting that I have seen children, who were crying with agony before the operation, look up in my face and laugh through their tears; and I have known a child to come to me, and show, by unmistakable signs, her remembrance of the benefit received on another occasion, by turning her head over upon my knees, and pointing to the swelling above a cuspid tooth.

The second effect of gum-cutting is the relief of obstinate diarrhœa, obstinate constipation, and of all apparent signs of diseased brain, such as vomiting, stupor, convulsions, enlarged and non-contracting pupil. This relief I have seen more than once during the past year.

The second notion with which non-professional persons are possessed is the hemorrhagic. I have no doubt that, in my thirty years of professional life, I have had quoted to me, on an average, more than one case a year of fatal hemorrhage from gum-cutting. But I never saw such a case, and I never spoke with a person who had seen one; it had always "been told to her" by some one else. I can imagine that it might be the possible result in one of the so-called "bleeders;" but a prick with any other instrument in any other part would, in that case, be likely to have the same result. The nearest approach to this condition that ever came under my observation was some ten or fifteen years ago, in the case of a young man of at least twenty-five years of age, who died of hemorrhage following the extraction of a tooth.

There is no operation, no medicine, which may not be followed by death. To offset any death resulting from gum-cutting (an accident which I never witnessed and never heard well authenticated,) I could point to large numbers of infants whose comfort has been established, whose lives I believe to have been saved. There are many more, whose comfort I believe to have been sacrificed, and whose lives I believe to have been destroyed, by the prejudice against the gum lancet.—*Boston Medical and Surgical Journal.*

ARTICLE X.

Aconite as a Local Anæsthetic.

Dental Caries.—In these cases the tincture is probably efficacious as an anæsthetic just in proportion as it reaches the nerve itself. Most dentists and physicians have often applied it in toothache, and it has given temporary relief in those cases where the nerve has been exposed. A few applications will sometimes destroy the vitality of the nerve entirely.

To Fill Teeth Without Pain.—This is the use of aconite to which I now wish to direct the attention of physicians and dentists. To me it is a new idea. Is it practicable? Years since, I was familiar with current dental literature, but not now; and perhaps I am suggesting something that may be familiar to others, and which may form an item of instruction in Dental Colleges. I have no doubt that the tincture of aconite root would temporarily so benumb sensitive dentine, that it might be excavated without pain, but this I do not know from actual experience. But that it will benumb an exposed nerve while we apply escharotic agents, I seem to have determined in a recent case. In my earlier life as a country physician, I devoted a portion of my time to dental operations, and so a very few family friends still insist that I shall "fill this tooth." And a few days since, in excavating a cavity on the articulating surface of a small molar, my drill reached the pulp. The opening was quite small, and at the side, rather than upon the end of the nerve cavity. The pulp bled freely and I lightly filled the excavation with cotton. There was but little pain for two days, but the cotton could not be even slightly pressed upon without the darting stab of pain. The cotton was then removed with the intention of destroying the nerve with acetate of morphia and arsenic; but this is commonly so painful that it occurred to me to first *anæsthetize the nerve with aconite.* Cotton, saturated with tincture, was placed in the excavation. It produced only slight and momentary pain, and in fifteen minutes it was removed. Another pledget, wet in the tincture and well covered with the morphine and arsenic, was now introduced. It remained in the cavity three hours, but produced no pain. It was then taken out, and as all discolored dentine had been previously removed, I decided to fill with gold, at once. It was plugged, the pressure upon the pellets not being made at first directly in the line towards the opening to the pulp; but afterward placed as solidly in every direction as serrate pointed instruments could be made to pack it. There has since been no pain or other evidence of inflammation. This is only one case, but it seems entirely successful. The structure near the nerve was hard and clear. I did not excavate the nerve-cavity, but the patient informs me that he repeatedly inserted a pin into it, without pain; and the nerve was therefore evidently destroyed. It is unquestionable that intense pain would have been produced by the pin, as well as by the escharotic, or along with it, or both.

May we not thus destroy any dental nerve without pain? If so, this suggestion may be instructive to physicians, may be of great value to the dentist, and may save immense suffering to those who have such teeth to be filled.

This suggests that other surgical operations, occupying only a small extent of tissue, may, perhaps, be rendered painless by a similar application. If so, aconite may be an agent of much value in developing painless surgery, both in the use of the knife upon limited portions of superficial tissues, and in the use of escharotics to destroy morbid growths.—*Prof. Paul W. Allen, in Medical Eclectic.*

ARTICLE XI.

The Relation of Imperfect Teeth to Cataract.

In an article on this subject, Mr. Jonathan Hutchinson, F. R. C. S., gives his views as follows:

By the way of summary, I think it may be stated—

1. That it is exceptional to meet with lamellar cataracts, excepting in association with an imperfect development of the enamel of the teeth; but that definite exceptions, in which the teeth are quite perfect, do occur.

2. That the kind of defect observed in the teeth consists in the absence of the enamel, and is shown in the incisors, canines, and first molars of the *permanent* set, to the almost invariable exemption of the præmolars. That, for purposes of diagnosis, the first molars are by far the most important, and may rank as the test teeth, since they not unfrequently show the defect when the others escape.

3. That it is highly probable that the defects in the development of the teeth are usually due to the influence of mercury exhibited in infancy; although it is quite possible that other influences, attended perhaps by inflammation of the gums, may occasionally produce similar results.

4. That teeth of the kind alluded to are met with very often in persons who are not the subjects of zonular cataract.

5. That the very important observation made by Arlt, that the subjects of lamellar cataract have usually suffered from convulsions in infancy, is fully borne out by further examination; and that it is very unusual to find lamellar cataract without such history.

6. That it is probable that there is a direct connection between the occurrence of convulsions in infancy and the development of lamellar cataract.

7. That, whilst there is every reason to believe that the defective teeth which are met with in connection with lamellar cataract are the results of mercury, the evidence seems opposed to the belief that the lenticular opacity is also due to the influence of the drug. The great frequency of mercurial teeth without lamellar cataract, and the not very infrequent occurrence of lamellar cataract, without mercurial teeth, are opposed to this view.

8. That the very frequent ceincident occurrence of lamellar cataract with defective teeth, is to be explained by reference to the frequency with which mercury is given for the treatment of convulsions in infancy.

9. That there is no reason whatever for supposing that lamellar cataracts have any connection with hereditary syphilis.

10. That, whilst it is certainly true that lamellar-cataracts are commonly met with in young persons who show general defects of development, short statue, ill-shaped heads, defective intellect, dwarfed lower jaws, or other physiognomical peculiarities, yet there is seldom any proof of the existence of rickets; whilst it is quite possible that

the peculiarities mentioned may be due to the disturbance of the nervous system in infancy in connection with the convulsions.

11. It is very important to distinguish between mercurial teeth and syphilitic teeth, and the peculiarities presented by each usually render this easy; the two are, however, as might have been expected, not uncommonly met with together.—*British Medical Journal.*

ARTICLE XII.

Local Treatment of Cancer of the Mouth.

Dr. J. E. Nichols recommends, in the Chicago *Medical Journal*, the more frequent use of local applications in cancer. Of the cases he gives, the following two show his treatment:—

Case 1. Mrs. J. B., aged fifty years, sent for me December 10th, 1873. Has been scrofulous and an invalid several years. No cancer in her family. For several months a small, hard, painful tumor has been coming on the gums of incisor teeth and roof of the mouth, obviously caused by wearing false teeth on an illy fitting rubber plate. Some five weeks before, a little-pill fellow had bunglingly endeavored to extirpate it with a pair of scissors and table fork. It had grown very rapidly from the time of that mutilation, and was now as large as a walnut. Diagnosed it to be an epithelial cancer. Treatment.

℞. Chloride zinc,
Pulv. blood root, aa q. s.

Rub together in open air till it forms a stiff mass or paste. Put enough on cotton wool to cover the entire surface of the cancer, wedge more cotton wool between it and the upper lip, tell her to avoid allowing the saliva to come in contact with it as much as possible, and instruct her to remove it and have the paste wiped entirely out of the mouth when she has had it there long enough to become tired.

December 11th. Patient had left the paste in position about two hours, and on examination, I found a thin white eschar over the entire surface of tumor, and detached and loose in places. Pocketed some paste under the loose parts of eschar, and applied more on the surface as before. I returned in about two hours and removed it myself.

I repeated this process for ten days, each day removing detached parts of the eschar, and applying fresh paste, both by pocketing it under loose parts of the eschar and on cotton wool. At the end ot this time the wound presented that freedom from cancerous-particles that one soon learns to recognize in using this paste. The applications were quite painful at times, but not dreaded, as would have been the knife.

Case 2. Nils A., fifty years of age, from Forest City, sixty miles west of this place, came to my office December 21st, 1874. Has had a little scabby sore on his under lip the last six months; lately it has grown very rapidly, and has become very painful. It now occupies the entire under lip, is red and purple on its surface, and is seamed and squamous near its centre, discharging an acrid fluid. Diagnosis, epithelial cancer. December 22d.—Apply the paste. December 23d.—As the paste has become dry and baked, I remove it and apply a fresh quantity. December 24th.—Remove the paste and apply bread and milk poultices. December 30th.—The eschar comes away this morning on removing the poultice. It is two and a half inches long, three-fourths of an inch wide, and five-eighths of an inch thick, at its greatest diameter. Some of the cancer remaining near the right angle of the mouth, I apply the following:—

℞.	Arsenious acid	ʒ ij
	Mucilage gm. acacia,	ʒ j.

Make into a stiff paste, apply it over surface of the cancer, press a fold of lint down over it, and when it becomes hardened cut away surplus lint with scissors. This is Dr. Marsden's "Cancer Paste," and should be used on not more than one square inch of surface at one time. I like it where the greater part of a cancer has been removed, and only a point or two of it is left behind in the wound, as this paste has more of a special election for the cancer than the zinc paste, and will not destroy so much of the surrounding healthy flesh, even when used in excess. January 1st.—Removed this paste by soaking it off with warm water, and have applied poultices ever since. A deep line of demarcation is now formed around the remaining part of the cancer, and I expect it to drop out in a day or two more.

ARTICLE XIII.

A Fundamental Requisite.

While it must be admitted that a knowledge of anatomy, physiology, pathology, and therapeutics is required in the conservation of the dental organs, and while, also, as must be equally apparent, artistic culture is every way desirable in the prosthetics of dentistry, it is nevertheless evident that the first absolute and indispensable requisite of a dental practitioner is a perception of the mechanics of the calling and manipulative dexterity.

There is danger that in the laudable ambition to justify the doctorate by medical culture the necessity of handicraft may be to a great extent neglected. It seems indeed difficult to prevent the adoption of extreme views in one direction or another on this subject. "The profession has been too much engrossed with the mere mechanics of the calling," says one. "The exaggeration of the necessity for a medical education threatens to fill our ranks with incompetents, so far as manual skill is concerned," says another. "He can remove a tumor or make a resection, but he cannot plug a tooth." "He can make a handsome filling, but that is all he knows." "He can diagnose skillfully, but he cannot correct the trouble unless it is to be met by a prescription." "He is a first-class jeweler, but has no more perception of facial requirement than any other jeweler." These and like criticisms show not only the one-sidedness of the practitioner, but generally, and as surely, an equal failure on the part of the critic to comprehend the circle of the requirements. Hypertrophy of the gums from stomatitis, referred by a medical man to a dentist, because it was not in *his* line; swelling of the face from a dead pulp and consequent alveolar abscess, referred by a dentist to the family physician, as erysipelas, because that was out of *his* line. Cases such as these show how desirable it is that a dentist should be more than a mechanic. On the other hand, fillings which can be removed with a toothpick, or dentures whose artificialtiy (to say nothing of their inefficiency) shocks every beholder, demonstrate that he should be something besides a doctor.

Half-knowledge in any vocation is deplorable, and yet how few in the profession of dentistry have secured the reputations of masters!

"Can you commend me to a thoroughly reliable dentist in ——?" was asked of a practitioner in the presence of the writer a short time since.

"My answer will depend upon the character of the service required," was the reply. "If you desire an artificial plate in the highest style of the art, I would name one gentleman; if you desire first-class fillings, another; but if medical advice or surgical interference in regard to abnormal conditions is sought, still another." Alas, how few there are who "fill the bill!" Yet, after all, however discreditable it may be to lack knowledge rightfully assumed as belonging to the calling, there is no lack so deplorable as that of the manual dexterity to perform the operations which are and must continue to be the staple of dental practice. If, where all are important, we must choose what particular qualification may be ignored, manipulative skill must be the last to be slighted. In the discussion of dental educational problems, it should be remembered that no medical, surgical, or æsthetical culture will compensate for the want of manual skill. Any preparation which fails to develop a high order of mechanical dexterity fails in that which is the first requisite of the dentist, as indeed it is that of the surgeon at large.

What if one can stand a creditable examination upon the pathology, diagnosis, prognosis, and treatment of all oral lesions; or can perform any surgical operation required thereby, if he cannot, when desirable, make an elegant and permanent filling? Wherever educated or graduated, such a dentist, no matter what his other qualifications, is not worthy of the name.

To natural and acquired manipulative ability, as the first requisite, should therefore be *added* the broader culture which has been indicated. The substitution of it will not meet the requirements. Every young man proposing the study of dentistry, with a view to its practice, should be instructed that, while the theory is based on principles which belong alike to every specialty of medicine, its practice necessarily involves an apprehension, to no mean extent, of mechanical laws, and includes the manual culture required to actualize the dictates of the will.—*Editorial in Dental Cosmos.*

ARTICLE XIV.

A New Method of Applying the Rubber Dam.

BY S. F. HAM, D. M. D., BOSTON.

Having had great difficulty in applying the Rubber Dam by the usual method of fingers and ligatures, and in many cases failing after a half hour's effort, it occurred to me that possibly the object might be accomplished more readily, by bringing into requisition the clamp and forceps at once, making them do the work heretofore done so unsatisfactorily by the fingers, as follows:

Let the rubber be punctured in the place desired, over the end of an instrument, as described by some good fellow (I do not recall his name), not long since, in one of the Dental Journals of the day, thus securing an unbroken edge, which I regard as of the utmost importance; now stretch the rubber till the aperture admits freely the beaks of the clamp; with the forceps in position, fold the rubber about them closely, so as not to obstruct the vision, and apply to the tooth in the ordinary manner.

Apply the Cogswell holder, and with a small right-angle burnisher, or round, smooth instrument, slip the rubber below the clamp on either side, and the work is done. There is no need whatever for ligatures of any sort in a large majority of cases, if the hole in the dam be not too large.

For crown, lingual and labial cavities, if the teeth be ever so crowded, I never find it necessary to force the rubber between, but simply allow it to remain drawn down tightly over them.

I have used the above method with great satisfaction for the last year, and think it a valuable acquisition to my knowledge in practice. I do not think I should rate it at par with the *discovery* of the dam, but, joking aside, I do think the dam, clamps, and forceps, with the above method of application, should be inseparable.—*Dental Miscellany.*

ARTICLE XV.

New Base for Teeth.

Dr. W. C. Barrett, of Warsaw, N. Y., President of the Dental Society of the State of New York, has just shown us a new base for artificial teeth, which, while it resembles rubber in all desirable points, seems to have some advantages over that base. The inventor asserts that it may be colored to imitate the gums, without admixture of a compound of mercury. It is a wonderful substance, and if the statements made by the inventor are accurate, is likely to be largely used in the stead of rubber. It is produced by an inexpensive process, from the *Euphorbia Corollata*, or common milk-weed. The first set of teeth vulcanized on this base Dr. Barrett made himself, and exhibited to us. A meeting of well known members of the profession was called at the office of Dr. O. E. Hill, of Brooklyn, and several sets, one of them put up by Dr. Hill, were shown. Though the base is entirely new, and its properties imperfectly understood, and though no one of those who used it had any previous experience with it, every set attempted was a success, closely fitting the plaster mold. The base seemed to be even stronger than rubber. We are promised a description at length for our next issue.

The inventor asserts that it will relieve those who use it from liability under the claims of the Cummings Patent.—*Ed. in Dental Miscellany.*

EDITORIAL. ETC.

The Thirty-Sixth Annual Catalogue of the Baltimore College of Dental Surgery has been issued the past month, and is embellished with a fine engraving of the New College Building situated on the S. E. Corner of Eutaw and Lexington Streets, opposite the largest market in the city, and in one of the best locations that could have been selected. This New Building is the largest, most elegant, and best arranged structure devoted to "Dental Instruction" in the world, and was completed for this purpose in February, 1875. The engraving, made from a photograph, and which can be seen in the advertisement in this Number of the Journal, shows it to be a handsome four story building with Mansard Roof, containing large Lecture, Infirmary, Laboratory and other Rooms, with windows extending from the high ceilings very near to the floors, and all arranged with special reference to their uses, and supplied with every convenience necessary for such an institution, and for the comfort of the students.

The THIRTY-SIXTH regular course of instruction in this College will commence on Thursday, October 14th, 1875, and continue until in the following March. The first two weeks of the Session are devoted to Infirmary Practice and Preliminary Clinics Lectures; the Regular Lectures commencing on the first day of November, 1875.

The Faculty take pleasure in announcing the continued and increasing prosperity of this Institution. Through its history of *thirty-six* years of continued existence, amid all the trials and difficulties of such an undertaking, its present proud position is established over the whole of the civilized world.

Between seven and eight hundred students have graduated from this College, and its diploma is held in such high esteem that large sums of money have from time to time been offered for it by dental practitioners residing in foreign countries, who desire the honor as a pecuniary benefit, without regard to qualification. It is scarcely necessary to say that the Diploma of the Baltimore College cannot be purchased.

The Faculty feel assured that the course of study and requirements, as well as the result of the examinations, will convince all honest minds, that not only a very marked improvement has been brought about by the officers of this College, in their endeavors to elevate the standard of dental education, within the past five years, but that this, the oldest Dental College in the world, still maintains its world wide reputation, and while it is far superior to many of recent growth, is second to none in this or any other country.

The Baltimore College has entered upon a new era in its history, and the Faculty are determined to graduate those only who are thoroughly competent.

The Alumni and all interested in Dental Education are very cordially invited to be present, not only at the Commencement Exercises, but during the final examination of the candidates for graduation, which takes place during the week preceding the Commencement.

The plan of instruction is designed to be in every respect thoroughly practical, using all available means to secure a complete course of instruction in the practice as well as in the theory of dentistry.

The absolute necessity for ACTUAL PRACTICE as an element of instruction, is not lost sight of in the effort to impart the knowledge necessary for the guidance of the dentist. In acknowledgment of the importance of this branch of tuition, the Faculty will continue to give special attention to the organization of the Practical Department, which affords more and better advantages than any private office

It will be of interest to dental students to have their attention called to the fact that the New Infirmary and Laboratory will be regularly open during the Spring, Summer and Fall, daily, and that this department of the College will be free to all Matriculants throughout the entire year. The Infirmary and Laboratory during the spring and summer, and until the Regular Session commences, is in charge of the Professor of Dental Mechanism and Metallurgy, whose daily attention and presence will be of inestimable benefit to students, and who will in person demonstrate on all subjects connected with actual practice. The benefits of a large Infirmary practice to the dental student cannot be well overestimated ; advantages are had which are entirely unobtainable in any private dental office. What students most feel their deficiency in, and most lack the opportunity of obtaining under a preceptor, the actual handling of instruments, and of witnessing and attempting for themselves the filling of teeth, are here enjoyed in full. There is always abundant material for practice, and both Infirmary and Laboratory are well equiped with instruments and apparatus. The large and interesting Museum of the College is also open to the constant inspection of students, and a study of the many specimens of morbid anatomy cannot fail to be of essential service.

An invitation is extended to all who wish to see the advantages of this system of instruction, to visit the Infirmary and compare it if they desire, with institutions of like character in other cities. The advantages of the spring, summer and part of the fall instruction in the Infirmary and Laboratory are offered free of charge to those who desire to avail themselves of it.

The Right to Use Celluloid.—The following letter was recently received from a dental practitioner of this city:

"I have in my posession a communication from Josiah Bacon saying: 'Permit me to state that the use of *Celluloid* is an infringement on our Patents;' by this, I presume he means that if we as dentists use *Celluloid* for dental purposes, we are held responsible for any license he may see fit to inflict upon us. If you see fit, publish this in your next issue of the Journal, as my desire is to have the matter brought out before the dental profession, that we may act as one man in exterminating a great monopoly whose venom is more deadly than the famous Vampire."

In answer to the above letter, we will state, that so far as we know or believe, the Goodyear Company have no claim whatever on *Celluloid*, or its use as a base for artificial teeth, and in this opinion we are sustained by Dr. S. S. White, who is the agent for the sale of this material. Dr. White speaks as follows: "I am not aware that Bacon has obtained a 'controlling' or any other interest in the celluloid base, and as I am the *sole agent* for its sale, I am sure such a thing could not happen without my knowledge."

Many practitioners after using *Celluloid* for a long time, express their satisfaction with it, and their belief in its durability.

BIBLIOGRAPHICAL.

Transactions of the New York Odontological Society.—Special Meeting, December 14th, 15th and 16th, 1874. Published in a very neat and attractive style by Samuel S. White, Philadelphia, 1875.

The officers of this Society are: President—A. L. Northrop; Vice-President—Benjamin Lord; Recording Secretary—Wm. Jarvis, Jr; Corresponding Secretary—Wm. Carr; Executive Committee—W. A. Bronson, E. A. Bogue, C. E. Francis.

This work contains a number of interesting and instructive essays and is worthy of careful perusal.

The Chemists' and Druggists' Diary for 1875, from the office of the London *Chemist and Druggist*, containing blank forms useful for the dispensing druggist.

A Protest Against, and Resignation of Dr. Thos. B. Gunning from Board of Regents of the lately started Dental College, in which he dissolves all official connection with the same, and accuses the so-called Faculty of publishing a letter leading to injurious tendencies as regards the manner in which they propose to conduct their institution. Published in pamphlet form by Dr. Gunning.

Dr. Gunning makes use of the following language in regard to this point: "Admit it once, and every city, town or community that can muster a few ambitious dentists, is authorized to have its own Dental College, the requisite being only that the Faculty shall be endorsed by the clergymen, physicians and lawyers of their acquaintance."

This is certainly to the point, and the Doctor's eyes have evidently been opened, and he discovers that "all is not gold that glitters."

Reflex Irritations Throughout the Genito-Urinary Tract, resulting from contraction of the Urethra at or near the Meatus Urinarius, Congenital or Acquired. By Fessender N. Otis, M. D. Clinical Prof. of Genito Urinary Diseases in the College of Physicians and Surgeons, New York. Published by McDevitt, Campbell & Co., 111 Nassau St., N. Y., 1875.

A Case of Reflex Neuralgia, associated with Urethral Contractions and a rare form of Urinary Sinus, with a description of the Cold Water Coil. By Fessender N. Otis, M. D. Publishers: D. Appleton & Co., 549 and 551 Broadway, New York.

Fifth Report of the New York Ophthalmic and Aural Institute, from May 1st, 1873, to Dec. 31, 1874.

Total number of Eye and Ear operations performed—725.

The Sanitarian is one of our most valued exchanges, and the May number contains Proceedings of N. Y. Public Health Association, Examination in State Medicine, Milk, Seasonable Food, Ventilation for Health, Burns and Scalds, the Climates of California, Preventive Medicine, etc., etc., etc.

The Pen and Plow is the title of a very well conducted and instructive monthly paper, published in New York, under the editorship of J. Payne Low, and devoted to agriculture, horticulture, landscape gardening and kindred subjects, and original and well selected matter besides.

It was formerly designated the "Farm and Fireside Journal. and is a welcome visitor wherever it is received.

The Herald of Health, another valued exchange, for May, contains No. 3 of "How I Managed my Children," by Mrs. Warren; "Physiological Arguments in Favor of Vegetarianism," by Prof. Francis W. Newman; "Coughs and Colds;" "The Flower Garden and Health;" "Out of the Nettle the Flower," by Amanda T. Jones; "Hints about the Prevention of Scarlet Fever;" "How to Secure Sanitary Houses;" "Heroes of Culture," by Edwin F. Bacon; "The Liver, its Use, and How to Take Care of It," Vegetable Oils and Fats," "Studies in Hygiene," "Health of Ministers," "Choosing a Mate," "Purity for Boys," "Sunlight and Health," etc., etc. $2.00 a year, with the Complete Works of Shakespeare free, as a premium. Samples 15 cents. Address Wood & Holbrook, Publishers, 13 & 15 Laight Street, New York.

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MONTHLY SUMMARY.

Death from Chloroform.—A young lad, aged 14, died on the 15 inst., at the Royal Free Hospital, whilst under the influence of chloroform. Mr. F. J. Gant, surgeon, said, that when the deceased was admitted, it was thought that the hip had been dislocated. When he examined the lad, it gave him great pain. He ordered Mr. Thompson, house-surgeon, to administer chloroform. The chloroform was administered for about two minutes, during which time about sixty drops were inhaled The deceased seemed to be half sensible; and on looking round, they saw the lad fainting, and in a dangerous state. Silvester's respiratory method and galvanism were applied, but without effect, for the lad died at once. A *post-mortem* examination was made. All the organs were sound. The cause of death was syncope from the effects of chloroform. A verdict of death from misadventure was returned.—*British Medical Journal.*

On Right-Handedness—This was the subject of a discussion at the Cambridge Philosophical Society last November. Dr. W. Ainslie Hollis presented a paper, in which right-handedness was attributed to the larger size of the left cerebral hemisphere, and its greater complexity and richness in gray matter. But this may be consequence rather than cause. Dr. Hillis claimed that right-handedness is peculiar to the human race, in which he is certainly wrong, (see Flint's *Physiology*, vol v, p. 457.) Some apes are left-handed, but most are right-handed. Lawson, in his "History of North Carolina," (1706,) makes the remark that the Indians are right-handed. (Is this true of all tribes?) Professor Humphries, a very competent anatomist, concluded the discussion by saying that he could see no anatomical reason for the preference of the right limb, the slight advantage in circulation to the right arm through the innominate artery and vein applying, in nearly equal degree, to the right side of the brain. He agreed that right-handedness was much a matter of education, and followed from the multifarious single-handed offices which are associated with the higher mental endowments. —*Med. and Surg. Reporter.*

Detection of Falsification of Wax.—The presence of resin in wax may be detected by its odor, or by treating the wax in the cold with alcohol; the alcohol dissolves the resin, the wax being almost entirely or quite insoluble. The alcoholic solution evaporated to dryness gives the resin, which may be easily recognized.

On treating wax with oil of turpentine—*starch*, and earthy substances are left as a residue; the wax only being dissolved.

Tallow is recognized by its taste and disagreeable odor. Wax containing tallow is less brittle and greasy to the touch; thrown upon live coals it produces thicker and darker smoke than pure wax.

To detect the presence of *stearine*, the wax is cut into small pieces, and boiled with lime-water; if the wax is pure, the lime-water remains clear; if, however, stearine is present, the lime-water becomes opaque, and deposits a white powder which is insoluble stearate of calcium.

Some manufacturers add considerable water to wax by agitation and fusion. This may be detected by the loss of weight of the wax when it is kept hot for some time upon the water bath.—*Druggists' Circular.*

Death from Methylene.—On Dec. 17, a death occurred at the Royal London Ophthalmic Hospital from the administration of bichloride of methylene. The patient was a woman aged twenty-five, suffering from firtula lachrymalis and caries of bone in the neighborhood of the lachrymal sac. A week previously the upper canaliculus had been laid open, together with a part of the outer wall of the sac, and a probe of large size was passed down the duct through an obstruction at its upper part. On that occasion the patient took methylene without any unfavourable symptom. On Tuesday two attempts were made by Mr. Couper to pass the probe, but as the patient seemed unable to endure the pain, it was thought advisable to have recourse to an anæsthetic. Bichloride of methylene was administered in the usual way by Mr. Buller, who for the last two years has been accustomed to administer this agent almost daily at the hospital, by means of a perforated leather inhaler covered with flannel. Three drachms by measure were poured into it (the ordinary quantity for an adult being four drachms.) At the end of about two minutes after the inhaler had been placed over the mouth and nose of the patient, her breathing suddenly became loud and stertorous. The anæsthetic was at once discontinued and the operation commenced. When the inhaler was removed the lips and cheeks were ruddy, but an unusual pallor of the alæ of the nose and skin around the mouth was noticed. The respiration, however, continued deep, full, and exaggerated. The inspirations were accompanied by loud palatal stertor, and the nostrils were observed to be flaccid, but there was no impediment to free access of the air to the lungs. Some seconds afterwards the pulse at the wrists rapidly failed, and then ceased almost suddenly, but the respiration continued for some time, and then failed rather suddenly. The tongue was immediately dragged forwards with forceps, and artificial respiration, by Silvester's method, established. The lower limbs and pelvis were at the same time gently raised from the couch, so as to favour gravitation of blood towards the brain. The face and breast were smartly slapped with a wet towel, and ammonia was applied to the nostrils. A strong solution of brandy and ammonia was thrown into the rectum as soon as possible, but was imperfectly retained owing to relaxation of the sphiniters. Artificial respiration was continued for forty minutes, but, with the exception of two or three sighing inspirations at intervals within the first few minutes, no sign of returning life was shown.—*Lancet.*

On Poisoning by Carbolic Acid.—Mr. F. Warren, resident surgeon at Steevens' Hospital, Dublin, relates (*Irish Hospital Gazette*, January 1) the case of a man who drank some solution of carbolic acid intended for disinfecting purposes, mistaking it for whiskey. Its action was most rapid; he immediately became insensible, falling down suddenly as in a fit; on his recovery he said that he remembered nothing whatever after tasting the liquid. When brought to the hospital he was suffering also from extreme syncope. The stomach-pump was used, stimulant enemata administered, and after about seven hours he recovered his consciousness and gradually rallied from the depression. An attack of acute gastritis followed. The urine passed the day after the accident was almost black, but was free from turbidity, and no trace of carbolic acid, blood, or albumen could be detected in it.—*London Med. Record.*

Teeth and Oatmeal.—Dr. Coles says, in the London *Medical Record:*

It has long been noted in this country that in those districts where the use of oatmeal (in place of wheaten flour) prevails, we find children and adults with the best developed teeth and jaws; and so well recognized is the influence of oatmeal diet upon the teeth, that many practitioners order its use as an article of daily diet for children, in cases where the dentition seems likely to be either retarded or imperfect.—*Med. & Surg. Reporter.*

On the Relief of Pain by the External Use of Chloral.—Dr. T. S. Dowse read before the Medical Society of London.(*Lancet*, Feb. 13, 1875.)a short peper on "the Relief of Pain by the external use of Chloral." He at first referred to the fact that until within the last few days he was not aware that Dr. Dujardin Beaumetz, of Paris, had largely experimented on the local use of this drug. He then showed that the local application of chloral will relieve pain, deaden sensibility, and allay reflex action when arising from irritation of the skin or mucous membrane. One of its most valuable qualities as a local application was its disinfecting power, and Dr. Dowse cited a number of cases of fungus hæmatodes, bed-sores, and sloughing wounds, in which it had acted as a more valuable disinfectant than anything else. Many other cases were also given illustrating the relief of pain produced by the local application of this drug, and Dr. Dowse also gave the means he adopted for its use. He uses four solutions—(1) a simple solution of four drachms of chloral to one pint of water, (2) one with glycerine, (3) one with perchloride of iron, and (4) one with chloride of zinc. Dr. Dowse concluded by remarking that the relief of pain by the external application of this agent was not effected by its absorption into the blood and by its direct action on sensory motor centres, but rather by immediate action on peripheral nerve terminations.—*Monthly Abstract of Med. Science.*

Oleate of Mercury in Treatment of Ringworm.—Dr. Cane ["London *Lancet*," November, 1873,] describes several cases in which he had used the oleate of mercury in treating ringworm. He says that over other remedies it has the following advantages: [1] It is a certain remedy if carefully applied. [2] It produces no staining or injury of the skin. This is of great importance where the disease appears on the face. [3] It is painless in its application, which is not true of the strong parasiticides. [4] It readily penetrates the sebaceous glands, hair follicles, and even into hairs themselves. Thus it is more likely to destroy the fungus than spirituous or aqueous solutions of mercury.—*Medical Weekly.*

An Indigestible Morsel.—At a late meeting of the Society Medicale des Hopitaux in Paris, M. Dujardin-Beaumetz exhibited a flattened leaden bullet which had been swallowed by a child. It had remained eight days in the digestive organs, produced asphyxia at the onset, and was voided naturally without having given rise to the least symptom of lead-poisoning, after treatment consisting of the administration of purgatives and sulphuric acid lemonade.—*London Med. Record.*

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ARTICLE I.

Notes on Celluloid.—Continued.

BY JAMES B. HODGKIN, D. D. S.

Prof. of Dental Mechanism and Metallurgy in the Baltimore College of Dental Surgery.

As was stated in the last number of this Journal, the best method of working Celluloid has not yet been discovered; it seems probable that the "dry method" has decided advantages over any other in one important respect—that of developing the welding properties of this substance. Oil or glycerine will entirely prevent even a partial union of the surfaces brought in contact, and in steam the chances would not seem so great of a good joint, though no experiments have been made so far in this direction. With the dry process however, the advantages are manifest, as there is no fluid interposed to prevent union.

Notwithstanding these advantages in favor of welding Celluloid, it is doubtful if so far the results indicate that a perfectly strong and solid joint can be made, one in which perfect union of the parts takes place. It is thought by some that the dry process favors welding to some extent, because the free camphor present in the plate acts as a solvent of the heated Celluloid, and so facilitates the flowing together. But several experiments seem to indicate that this adherence is not to be depended on. Several pieces of Celluloid were pressed into a mould, so constructed that each piece in its passage was cut through by a thin and narrow saw blade, the cut surfaces passing below the blade and coming together were strongly forced into contact while in a heated and plastic condition. On being removed from the flask, none of the pieces were sufficiently strongly united to stand the strain of bending, the strips snapping assunder on quite a moderate strain being applied, while one was not united at all. This experiment seemed to settle the question of the union of surfaces that have been cut by passing over pins or loops, and it seems probable that when Celluloid passes over a pin in a tooth that it does not firmly unite behind it, and only holds the tooth by its being moulded closely around it, which indeed is sufficient to hold most teeth in position.

Other experiments with a view of testing the welding properties of Celluloid with the aid of camphor as a solvent of the surfaces to be united, were made with only moderately satisfactory results. In one of these cases the plate to which it was desired to attach a new piece,—the case was one in which a tooth had been cut off a plate with a view of resetting it in a slightly altered position, was inverted, as for repairing with rubber, and the part to be operated on was scraped clean and painted with a solution of camphor in alcohol. This instantly converted the surface into a semi-pasty substance, seemingly highly favorable to union with the piece to be welded. The patch to be united was painted in the same manner with the camphor solution, placed in position, the flask heated and closed. This piece seemed perfectly united and the result looked highly favorable, but on finishing it up, the joint was found to be not at all strong, breaking on the application of a force not sufficient to slightly spring the thin plate. This experiment was repeated several times, in various ways with the same result, establishing the conviction that two surfaces of 'Celluloid do not weld perfectly under the methods of manipulation at present known. Further research in this direction is earnestly to be desired. When it is remembered how long we were without the simple and magical cement known as Rubber Solder, and how "dove tails" and holes were cut to mechanically retain the new rubber in position, the success which Celluloid has achieved is remarkable.

Such observations as we have been able to make of the action of camphor leads to one or two conclusions, the first of which is that a surface wet with camphor solution is expanded by it, the action being like that of nutting one side of a dry board, developing a tendency to warp. The other fact is that these surfaces thus camphor treated, super-saturated it may be with the solvent, seem to lose their elasticity and break easily. Further observation is needed on this last point.

The hardness of the plaster investment of Celluloid is complained of by some as an evil, and there is some difficulty in removing it from frail and delicate pieces. This hardness is in marked contrast with the softness of the plaster investment of rubber cores, when the investing material seems after a few hours to become entirely changed in structure and thoroughly disintegrated. This was commonly believed to be due to the sulphur present in the rubber, but some experiments undertaken a short time ago by the writer at the suggestion of Prof. P. H. Austin, led to the belief that it was the greta pressure of the steam that was the cause of this change in the plaster. Not having had an opportunity of inspecting the plaster used with the steam apparatus we do not know if it is subject to this disintegration or not.

The removal of the plaster from the moulded Celluloid and attached teeth plate, it is said is greatly facilitated by adding a pinch of salt to the water in mixing the plaster, but if this is done the mould should be used at once, as the salt seems to render the plaster soft, after standing awhile. A coat of linseed oil painted over the surface of the mould very greatly facilitates the separation of the plaster. Some difficulty is often found in removing the adherent plaster on the palatal surface of the plate; this the oil almost entirely obviates, making the parting smooth and clear.

The fit of Celluloid to the teeth of the piece seems remarkably close, and it contrasts favorably with rubber in this respect. All are aware that if rubber is cut away for a short distance down upon the neck of a tooth that the line of junction which at the surface seemed clear, is under the surface not closely adapted to the tooth. This seems not to be the case with Celluloid, considerable coming away not revealing any shrinkage within.

ARTICLE II.

Prosecution for Fees.

BY A SCARBOROUGH, ENGLAND, DENTIST.

Peacock *vs.* Harrison.—This was a curious action, in which much interest was manifested during the whole of the time it was under hearing. It was a case affecting the charge of a local dentist, in which the plaintiff, Mr. Charles James Peacock, dentist, Scarborough, claimed the sum of £4 4s. from the defendant, Mr. J. W. Harrison, timber merchant, Cottingham, near Hull, for filling one of his daughter's teeth, and operating on another tooth, the operation lasting four and a half hours, in October, 1873. The defendant's daughter is Miss Mabel Harrison, who had been a pupil in Miss Stephens' boarding-school, Denmark House, Scarborough. It was objected on the part of the defendant that the charge was excessive, and defendant had paid one guinea into court, pleading that that was fair and reasonable compensation to the plaintiff. For the plaintiff there appeared Mr. Warner Sleigh (specially retained) and Mr. Haigh, instructed by Mr. H. O. Welburn, solicitor. Mr. John Smith was counsel for the defendant, instructed by Messrs. Cornwall, Watts, and Crowther.

Mr. Sleigh opened the case in a speech of much ability and considerable length. The plaintiff was, he said, a gentleman who must be well known to the jury, for he had deservedly gained during his course of practice a very high reputation for skill, patience, knowledge, and success in his profession as a dentist. He had been educated as a dentist, and he had received his diploma from a college which existed in America, and which he (the learned counsel) was sorry to say there was nothing like in this country— it was a college for the study of dental surgery. Having received that education, having passed that college, and having got his diploma, he had been practising in England for some years. His fee was now a guinea an hour, and it was well known that that was his charge. Mr. Peacock, from his skill and experience, thought he had a right to make this charge, and it was one that had been for some time ungrudingly paid by his patients, who considered it a fair and proper charge. The defendant was a gentleman who resided in the neighborhood of Hull, and in the month of October, 1873, his daughter, Miss Mabel Harrison, was at school at Scarborough, at the seminary of Miss Stephens. She suffered there very much from toothache—several of her teeth being in decay—and on the advice of Miss Stephens she sought the permission of her parents to go and visit the plaintiff, so that one or more of her teeth which were decaying should be stopped. The requisite permission was given, and on the 13th of October she went to the plaintiff's residence to go through the operation. She was there several hours, Mr. Peacock and his assistant performing two distinct operations on her. One was the filling with gold of one of her jaw or molar teeth, whilst the other was preparing the next tooth to it, which was a dead tooth —so that it might be operated upon at a future day. The two operations were not completed under four hours and a half, and Miss Harrison made an appointment with the plaintiff that she would go on the 15th and have the second tooth further attended to. That appointment was not kept, however, and on the 24th the plaintiff got a letter sent him by Mrs. Harrison, asking how long he would take to stop her daughter's tooth, and stating that she should not send Miss Mabel a second time unless Mr. Peacock would say how much he was going to charge. It would be for the jury to say, but he (the learned counsel) contended that the fair interpretation to be put upon that letter was that Miss Harrison's parents, or at any rate Mrs. Harrison, knew that the plaintiff was in the habit of charging so much an hour; indeed he should be able to prove beyond that, that they must have known it was a guinea an hour. Well, to go back to the 15th, the appointment was not kept, but for that, though plaintiff was in the habit of making his engagements a long time in advance, (owing to the extent of his connection,) and charging a guinea if they were not kept, he had not made any claim. He claimed four guineas for his work on the 13th. The bill was sent in the ordinary way to the defendant at Christmas, 1873, but payment was not pressed, and the account stood over unsettled. They would have thought that if the defendant had then thought of contesting the charge on the ground that it was unreasonable, and under the belief that he would be justified in so doing, that when the bill was sent in he would have then said something. But no; there was no repudiation, and the thing ran on until the summer of 1874. The plaintiff then sent, in the usual way with overdue accounts, a notice to the defendant, which intimated that he would be glad if he would pay, and it was in reply to that that he received the following communication:—

COTTINGHAM, NEAR HULL, MAY 15TH, 1873.

Mr. C. J. Peacock—

SIR:—I expected to be in Scarboro' before this time, and to have called upon you respecting your charge of four guineas for stopping one tooth. I was brought up a surgeon, and have stopped teeth and drawn hundreds, but never in my professional experience heard of such a charge

If you reduce it to one guinea I will pay it; this is 10s. 6d. more than I ever was charged.
I am, yours truly,
J. W. HARRISON, M. R. C. S., L. A. C.

In the above letter, said the learned counsel, Mr. Harrison went out of his way to falsify the facts, for he here said plaintiff was charging four guineas for stopping one tooth, when the fact actually was, as he had stated, there were two operations, viz: the stopping of one tooth and the preparing of another. To the above letter Mr. Peacock replied as follows:—

SIR.—Before your daughter came to me she knew from Miss Stephens that my fee was a guinea an hour. It took two of us four hours and a half to perform the important operation, for which I have only charged. four guineas. My practice is much larger than I am able to attend to, and if I had never seen your daughter some one else would have occupied the time I devoted to her. As regards the truth of my statements I refer you to Miss Stephens. Having rendered your daughter the service of which she stood greatly in need, in the way of my profession, to the best of my ability, I now call upon you to satisfy my demand for just compensation for the time, labor, and what skill I may possess, I have given to her case.
Yours obediently,
C. J. PEACOCK.

That, the learned counsel held, was a fair and gentlemanly way of putting the matter to defendant, and a way in which a fully qualified professional man who had given his time and his talents was entitled to put it. From that time Miss Harrison was removed from Scarborough, and defendant, he supposed, now imagined that he could ignore plaintiff's claim, because he took no notice of the letter just read. He (Mr. Sleigh) could not help thinking that the defendant might at any rate have decently acknowledged the receipt of the communication, but he had not thought it worth while to reply, and had left Mr. Peacock, to recover his money if he could. This was not the first time the action had been before the Recorder. When brought the first time before the Court it was withdrawn by reason of the absence of a witness, so that accounted for the lateness with which the present jury had to deal with it. Now, if the plaintiff was entitled to his four guineas he was perfectly right in fighting this case for the principle of the thing, cost what it might; in fact, now that the challenge was thrown down it would be cowardly if he did not take it up. Having a fixed scale of charges, and having brought his skill and knowledge to bear in the service of defendant, his client felt it would be an insult to himself and derogatory to his profession to accept any less. This was the principle on which his client came to the jury, and declined to accept the paltry guinea proffered by the defendant. The only matter in dispute was as to the amount charged, and he contended that it was clear from the letters read that Miss Harrison's friends knew there was a stipulated charge; and if they did not know the precise amount in the first instance, it was clear they had accepted the charge made for the first visit, because Mrs. Harrison said her daughter was not to go again without she knew what the precise charge would be for a certain operation. But he should go further than this, and he would be able to show that Miss Stephens knew quite well that a guinea per hour was Mr. Peacock's charge, and that her pupils were in the habit of paying that charge.

Mr. Smith remarked that there was no proof of contract.

Mr. Sleigh said he was anxious to try the case on its merits, as between man and man, and if it was the policy of the other side to throw every possible technical objection in the way of his client, in order to prevent him obtaining his just demands, why the jury would form their own opinion of such conduct. There were dentists and dentists, some who performed their duty with ability, and who were really and truly benefactors to their race; others there were who were quacks and charlatans, and had no more right to put an instrument into the mouth of a fellow-being than they had to do any other act which caused death through negligence or want of skill. There was, as he had regretted, no college of dentists in England, and it was a very easy thing for a man to get a brass plate up and call himself a dentist in this country; it required by law no education for the work, no diploma, no qualification. It might be, and doubtless was, that some who called themselves dentists might be able to fill up a holed tooth in a very short time—might, in fact, be able to do twenty fillings up whilst another man more competent took all the time to do one, and do it properly and effectually. The learned counsel then minutely described the operation of filling up a tooth in the manner in which he said it was necessary it should be done, pointed out that the material used, gold leaf, was very expensive, and then intimated, that in order to support the plaintiff in his declaration that the charge made was a fair and reasonable one, as well as the one understood to be his charge, he should call a number of witnesses whose testimony would be valuable, including one of the most successful and experienced dentists of the present day, Dr. Coffin, of London.

Mr. Smith remarked that he questioned whether some of the evidence spoken of would, when it came to be tendered, be admissable.

Mr. Sleigh contended it would, and observed that Mr. Smith was now beginning to feel that it was getting a little too hot. (Laughter.) He (Mr. Sleigh) thought it came with ill grace from the defendant who was contesting the claim, to try and exclude this evidence as to the competency of the plaintiff and the fairness of his charges.

The Recorder hinted that the evidence would be perfectly proper, and he further observed that if the defendant knew what the charge was going to be he should rule that no evidence as to fairness was necessrry.

Mr. Smith.—Unless the work is badly done.

The Recorder.—Certainly.

Mr. Sleigh.—Oh, that is another card my friend is going to play. (Laughter.) Till to-day it has never been suggested that the work was not properly done. However, I am perfectly willing to take it upon that ground.

He proceeded to say that Mr. Peacock was a gentleman of education, he had taken every trouble to make himself fully acquainted with the details of his profession, he had a diploma from the Dental College of Pennsylvania, and having for some years practised the profession with success in this country, he was entitled to be fairly remunerated for his skill and knowledge. Witnesses for the plaintiff were then called, and were examined by Mr. Haigh.

Miss Stephens was the first witness called. She said she kept a young ladies' school at Denmark House, Scarboro'. In October, 1873, Miss Mabel Harrison was at her school, and complained about her teeth. Witness told her she had better see a dentist, and she named Mr. Peacock, the plaintiff, advising her to write to her parents, asking them to give their assent to her seeing him. Mr. Peacock had usually attended her pupils, and she knew his fee to be a guinea an hour. It was well known amongst the pupils what that fee was, and witness told Miss Harrison that it would be a guinea an hour. Miss Harrison got a letter from her mother, and in consequence of that she went to Mr. Peacock. She went at about ten o'clock in the morning on the 13th of October, and returned a little after three o'clock. Previous to that Miss Harrison had suffered a good deal from her teeth, which were very decayed. After seeing Mr. Peacock she became quite well.

Mr. Charles James Peacock, the plaintiff, was then sworn. He said he was a graduate by examination of the Pennsylvania College of Dental Surgery, and his diploma was in Court, (produced.) He studied in America expressly for the purpose of being a dentist. He had been in practice about nine years in Scarboro', and had a very considerable connection. Witness then gave evidence regarding the correspondence alluded to by Mr. Sleigh. The fee of one guinea an hour was a fair and reasonable charge, and one which was always paid to him by all his patients. His appointments were always made in advance, and he occasionally charged a guinea if an appointment was not kept. That was not charged in this instance to the defendant because of his daughter not coming a second time. Pupils from Miss Stephens' school had come to him before, and he had been paid a guinea an hour. Witness then spoke as to the operations he performed on Miss Harrison on the 13th of October. He prepared and filled with gold a molar tooth and was about three hours at that. The other tooth had the pulp exposed and diseased, and he applied medicine to destroy the nerve and then put in a temporary filling to keep the medicine in. That operation took about an hour and a half. To do justice to the patient he could not have occupied less time than four hours and a half for both. Compared with other dentists the fee was a fair and reasonable one. He knew the fees of London dentists. He had himself paid to Dr. Coffin £60 for 19 fillings. Dr. Coffin told him that if he (plaintiff) had not been a professional man his fee would have been two guineas an hour.

By Mr. Smith.—I am 40 years of age. I was in a Manchester warehouse before studying to become a dentist, and I was at Phillips' at Manchester. The diploma is dated 1861. I had two sessions at the college. A session is four months and a half.

Mr. Smith.—How much did it cost you, may I ask?

Witness.—Oh, about £200 altogether.

Mr. Smith.—Not the diploma; what did the diploma cost you?

Witness.—Oh, some nominal matter. I forget now. I believe about twenty dollars was the cost of the parchment.

Mr. Smith.—And I suppose that would be paid in greenbacks.

Witness.—No; they had not greenbacks in America then. (Loud laughter.)

Further cross-examined by Mr. Smith. Witness said that the tooth, if it was properly stopped, ought to do for years if the brush was liberally used. I have charged 10s. 6d. for filling a tooth, but that is some time since. I used to charge from 10s. 6d. to two guineas a tooth, but in July, 1871, I raised my fees to a guinea an hour.

Dr. Hickson, of Scarboro', said he knew the plaintiff as a dentist, and knew his fee to be one guinea an hour. Had many a time sent patients of his to the plaintiff since that was his fee. Witness had himself been under his treatment. He considered him, he might as well say it at once, one of the first dentists in Europe. He did not think the fee was unreasonable.

Dr. Coffin, of Cornwall Gardens, Queen's Gate, London, and a graduate of the Baltimore College of Dental Surgery, was next called. He said that for eighteen years he had practiced in London and in the United Kingdom; did not think the charge made by the plaintiff considering what he had done, was enough. Witness charged two guineas an hour He had seen Mr. Peacock's work, a good deal of it for thirteen years; and he thought very highly of it. There was complaint of every dentist's work, but he thought there was less complaint of Mr. Peacock's than most people. He could speak in the highest praise of him. The process of filling a tooth should be a slow one when done properly. Of course witness had not seen the operation in question, but judging from what he heard it was not too long.

Dr. Horne, of Scarboro', said he had frequently been under plaintiff's hands. His fee was one guinea per hour. He had a very good opinion of him. For the skillful services he rendered he thought the charge most moderate.

Dr. Teale, of Scarboro', said that plaintiff had stopped two teeth of his. From his experience of the plaintiff, both as a patient himself, and from what he knew of patients of his who had been under him, he had a very high opinion of him. He had seen a good deal of good work of his, and no bad. His fee of a guinea an hour had for some time been well known by witnesses patients.

This concluded the plaintiff's case.

Mr. Smith addressed the jury very briefly for the defense. He began by depreciating the value of plaintiff's diploma as one which could very easily and cheaply be got, and in regard to his mode of charging said that would enable him him to dawdle over his work as long as he thought proper. He suggested that it had been done in this instance; but further than that, Miss Harrison would be called, and she would show that even with that the work was not done properly, for part of the stuffing had since come out. She had been subpœnaed by the plaintiff, but they had singularly enough not thought fit to call her. As to the evidence given by the doctors whom the plaintiff had called, he (Mr. Smith) did not wish to impugn their evidence, but they were all more or less interested in keeping up high fees. (Laughter.) He would only call Mr. Harrison, a dentist of London and Hull, who would say that a guinea would be a reasonable charge, and after that the case would be in their hands.

Miss Mabel Harrison, the defendant's daughter, stated that she went at ten o'clock on the morning in question to see Mr. Peacock. She had to wait about half an hour, and whilst she remained there the plaintiff left twice, being absent altogether a quarter of an hour. She got home at half-past one or two. Last Christmas a portion of the stuffing came out.

To Mr. Sleigh.—I have had four or five teeth performed on. Since I was at Mr. Peacock's I have been to Mr. Harrison's, at Hull, who comes from London.

Mr. R. H. Harrison (no relative of the defendant's) said he was a dentist in London and Hull.

Mr. Smith.—How long have you been one?

Witness.—I have been one ever since I was anything.

Mr. Sleigh.—What a precocious infant he must have been. (Laughter.)

Whereupon one of the legal gentlemen observed that it was very natural witness should have begun life by "cutting his teeth," an acute remark that did not seem to catch the Recorder's ear.

Witness continued.—I consider one guinea, or at the most two, an ample fee for a provincial dentist.

Witness added in answer to Mr. Smith, that he was a Licentiate in Dentistry of the Royal College of England—not of America.

Mr. Sleigh.—Don't you know that the Americans are the most proficient dentists in the world?

Witness.—I know that they claim to be.

Mr. Sleigh.—Are they not recognized as such?

Witness.—I should be very sorry to think so.

Mr. Sleigh.—We don't want to know anything about your sorrow. I ask you whether they are not considered such?

Witness.—I cannot tell what other medical men think.

Mr. Sleigh.—Do you deny that in medical and scientific circles the Americans are considered the best dentists in the world?

Witness.—I don't deny it, and I don't admit it.

The Recorder having briefly summed up the evidence, the jury retired, and after a short absence returned into Court with a verdict for the full amount.

Mr. Sleigh applied for costs.

The Recorder certified that it was a fit case to be brought into that Court, and he therefore should order that the costs should be paid according to the usual scale of the Court.

ARTICLE III.

Obituary.

Dr. M. McCarty, of Pulaski, Tennessee, was born October 26, 1832, in Clark ocunty, Kentucky, and was educated at Bethel College.

In the year 1864, he moved from Russellville, where he then resided, to Toronto, Canada, where he studied dentistry with Dr. Elliott. He returned to Russellville in the spring of 1865, and continued the study of the profession with Dr. Jones, of that city.

On the 26th of October, 1865, he was married to Miss A. P. Stewart, and afterwards, during the years 1866 and 1867, he attended one course of lectures at the Cincinnati Dental College. In May, 1867, Dr. McCarty moved to Pulaski, Tenn., where he practiced his profession until January 1, 1874, when he returned to Russellville, where he died in the March following.

Dr. McCarty was a member of the Tennessee Dental Association. He was a quiet, unassuming gentleman, honest and thorough in all his professional work, and but for his short life and feeble health, he would have attained a high order of excellence in his profession.

S. J. COBB,
Chairman Committee on Memorials,
Tennessee Dental Association.

ARTICLE IV.

What may our Patients Reasonably Expect shall be Accomplished by Operations upon the Teeth.

BY GEO. H. CUSHING, D. D. S., CHICAGO.

Read before the New York Odontological Society.

The question which it is the purpose of this paper briefly to consider is one which very largely affects the interests of the dental profession. If the true solution of it could be clearly arrived at and accepted by the profession, their interests could not fail to be favorably affected thereby; while so long as it remains an unsettled question, or is but imperfectly understood, or carelessly defined, it must prove more or less detrimental to professional interests, and, it may also be added, to the interests of humanity, for the two are identical.

It is quite certain that this subject has not engaged the serious thought of the profession to the extent that its importance demands; and the endeavor will be made in this paper to so answer the inquiry in a general way, as to arouse attention to its importance, with the hope that through your discussions and the influence of your Society it may be brought more generally before the mind of the profession at large, with such an impress of the best thought upon it from your members as will secure its proper consideration, and lead to its speedy and correct interpretation.

The true professional mind could hardly rest satisfied without being able to give an unequivocal reply to this query, and yet it is more than probable that the diversity of answers would be almost as great as the number of individuals replying.

The general public, who are especially interested in the truthful reply to this question, can have no proper appreciation of the value of our services until this question can be answered truthfully and with a common understanding by the profession at large; and they have a right to demand that it shall be so answered.

It will not be undertaken here to discuss the question as to what the public may have a right to expect from the assumed or from the apparent attitude of the profession toward them.

Whatever that attitude is—whether true or false—we shall not here attempt to say. If it be false, it must, as speedily as possible, be corrected; if true, it will need no reference except as will naturally come from a consideration of the answer to the question under consideration.

It is not at all the purpose of this paper to attempt an exhaustive essay. It will only be attempted to place the subject before you in such a manner as to elicit a full discussion of all points incident and essential to a full understanding of the question. It is essential to anything like a fair consideration of this question, that dental practitioners should be properly classified. Of course this can only be done in a general sense, as it might be said that there are as many classes as individuals.

For the purpose of this paper, it will be proper to class them under two heads: one class embracing all those who are endeavoring constantly, honestly and conscientiously to do the very best that can be done, and who avail themselves of the various means to that end which are within their reach, *i. e.*, association, free interchange of views and experiences, and the literature of the profession, both standard and periodical. The other class, of course, embraces all those who do not avail themselves of these means, and who, either from prejudice, ignorance or dishonesty, choose to remain in the disreputable rear-guard of a truly noble profession. The importance of this distinction needs not to be argued, and in treating the subject of this paper, the first mentioned class of practitioners will be understood as the profession—the authors of the operations under consideration.

In attempting to answer the query started by this paper, very many points require consideration. A direct answer, and perhaps one which would be given by the greater number of respondents, would be that patients might reasonably expect that their teeth would be preserved to extreme age, or until lost from other causes than caries. This might, in a certain sense, be affirmed with entire truth, and yet such results are generally so contingent upon conditions beyond the control of the dentist, that it would not be right to say that such expectation would be reasonable without stating the conditions on which alone it is possible, in many cases, for this statement to be true.

The conditions of course are, that patients shall obey implicitly the necessary instructions of their professional advisers.

Now, just here it is proper to call your attention to a very grave error which patients are apt to cherish, and one which, unfortunately, too many of the profession are inclined to foster, and that is, the supposition that teeth once well filled will last forever. You are all doubtless aware to what extent this false idea prevails, and you know as well how in part it has come to prevail—because some practitioners not only have allowed their patient to take this for granted, but have many times assured them that operations would last indefinitely—never requiring renewal. Not only do a large number of persons hold this view regarding operations performed, but very many of them seem to think that, having the teeth once put in good condition, they will never require anything more to be done, either to those already operated upon or to any others—as though there was some conservative property residing in the gold which is placed in certain teeth that would surround with its saving influence all the teeth in the head.

Until the public mind is disabused of this idea, and the profession generally make it a rule to instruct their patients that these operations are, in the very nature of things, liable to be but temporary in their character, we can have no basis upon which patients can found any reasonable expectations. Again, there are some individuals who have no faith at all in the operation of filling teeth, because they have found in their own experience, or in that of their friends, that certain teeth that had once been filled were, in a few years afterwards, hopelessly decayed.

This conviction is arrived at on their part in most cases because of the above named false promise that teeth once filled require no further thought, and consequently they have neglected the essential after-treatment and professional supervision necessary to insure the best results.

These points are emphasized here because they enter so largely into the question which it is sought to solve, and because it is certain that the false position which the profession to-day occupies before the public (to whatever extent it is false) is due mainly to a lack of a proper appreciation of its duties in this regard.

Probably no one would deny that, if children were placed under the dentist's hands at the proper age, and he was allowed to have entire control of them, so far as their teeth were concerned, until maturity, their teeth could all be preserved up to that time; and yet how many parents are there who think that their children *are* thus placed in the dentist's hands, and that they are really complying with all his reasonable demands, who yet find that results of operations are continually disappointing them, and who are not made to realize that they have criminally neglected the instructions of the dentist. How many are there who have been instructed by their dentist to bring their children to him every three months, who bring them only every one, two or three years. And again, how many have been instructed in the importance of a thorough cleansing of the teeth, especially after eating, who think their children do all that is necessary by brushing their teeth upon rising and retiring, neglecting entirely the only periods when brushing can be said to be of any great value? Thus, while children may be nominally in the hands of the dentist, yet they are in fact not at all so in the proper sense, and a failure to arrive at the best results is the consequence; a failure which is oftentimes unjustly charged to the dentist. This laxity on the part of patients and parents is partly the fault of the profession, in that they do not sufficiently impress upon them the importance of observing their instructions; but it is not altogether so, for there are many who will not follow such instructions, however carefully given.

It cannot be too forcibly urged that the profession could do very much towards insuring compliance with their instructions than they are doing, if they were themselves thoroughly impressed with the importance of the subject.

As in the cases supposed above, the circumstances attending them would be essential elements in making a prognosis regarding them, so, in general (with every case having some individual peculiarity probably,) must be considered the different circumstances under which operations are made; the various characteristics of the individual mouths which are treated; the great liability to decay in the teeth of some individuals, and the less liability in those of others; all these considerations must have weight in determining the solution of this question.

The fact cannot be ignored, that the mere operation of filling teeth does not alter their character as organs liable to disease—the same after the operation as before—that the operation does not remove the causes of decay, which may still continue active, or become so at some future time, and which will again prove destructive of the other parts of the teeth under conditions favorable to such destruction. Were it otherwise, a very positive affirmation could be made of the benefits which might be expected from these operations.

In view of the premises thus set forth, what then may be offered as a proper answer to the question sought to be solved? This, viz: patients may reasonably expect from operations on the teeth just what an honorable, conscientious practitioner promises them they may expect under the conditions he (the dentist) may impose; that the benefit derived from operations will be in the precise ratio to the obedience to such instructions, and that patients, doing their duty as faithfully as the dentist does his, may hope to retain their teeth as useful organs to an indefinite period. These things may reasonably be expected; but there are some things patients may not reasonably expect.

They may not expect that so long as they are mortal will they be entirely exempt from danger of caries, nor need they think that mere manipulative skill, no matter how high an order, bestowed in making the most faultless operations, will justify them in continuous disobedience to the laws of health, or the disregard of those measures of prevention which experience has demonstrated to be essential for the preservation of the teeth, without being called upon to pay the penalty.

Keeping in view these considerations, it will be the fault of patients themselves if results *seem* to bring discredit upon the profession.

The duty of the profession in this regard is very clear—that they see to it that they do not promise more than they perform, and that they do not allow their patients to comfort themselves with hopes not founded in reason.

ARTICLE V.

A Dentist in the Newspapers.

A dentist of Washington, D. C., has been attracting some rather unenviable attention from the newspapers of that city, by the publication of a very singular and mysterious card, as follows:

"WANTED—The front teeth of a girl fourteen years of age. Will pay liberally and replace artificially. Apply after 3 P. M., at Dr. ——."

This advertisement very naturally called forth the wondering comments of many who read it. Why the teeth of a boy of that age wouldn't do, and why, indeed, teeth at this exact time of life. It does not appear, however, very clearly from the card, whether the patient or the teeth should be fourteen that were wanted.

If our dentist did not get the desired "front teeth," he seems at least to have gotten notoriety, as appears from the following card, published soon after the appearance of the advertisement in question.

THAT FRONT-TOOTH ADVERTISEMENT.

To the Editor of the National Republican.—SIR: A dentist offers to pay liberally for a front tooth of a girl fourteen years of age, and to replace artificially. Upon the commission of this act will not the offender, on conviction, be imprisoned not exceeding seven years and fined not exceeding $1,000 under the act of Congress of the 30th of April, 1790, section 3. To extract a sound front tooth is such a bodily hurt as not only maims and disfigures, but diminishes corporal abilities. Anciently it was held to be felony, because the offender had judgment of the loss of the same member. The words of the statute are very full and comprehensive, and extend to deforming a poor female child by pulling out a fore-tooth for mercenary purposes. The press, the public censor, should rebuke such an insult to the morals and humanity of the age. Where is the Society for the Prevention of Cruelty, not to Animals, but to Children. K.

And not content with what his correspondent says in the matter, the editor of the paper adds the following:

The attention of Mr. Bergh, Mr. Gatchell and the society generally for the Prevention of Cruelty to Animals, is directed to a daily advertisement in an evening cotemporary, as follows: "Wanted.—The front tooth of a girl fourteen years of age. Will pay liberally and replace artificially." The front *teeth* were first called for; the number is now modestly reduced to one. In the imaginative pages of Eugene Sue the agonies of his lovely and unfortunate heroine, "Fleur de Marie," are graphically portrayed while undergoing a like torture; and Victor Hugo, too, in the career of the still more wretched "Fantine,' presents us with a similar episode. These are fictions only—the wild exaggerations of French romance—but for our happy and enlightened country it is reserved to be the proposed theatre of the actual, horrible *fact*, provided only the victim stands ready. Gentlemen of the humane society, do you consent? Read the communication in another column regarding this matter.

These criticisms on his call for teeth brought out the dentist himself, in this style:

WASHINGTON, D. C., Feb. 5, 1875.

To the Editor of the National Republican.—SIR: Desiring to solve a great scientific problem, I have become the subject of severe criticism, though no injustice or inhumanity is contemplated or necessary. Many teeth are sacrificed from various causes that will answer my purpose; it is not even necessary that they should be sound. The principle I believe to be correct. If it proves so, the poor will have reason to consider me a benefactor.

Signed, ——— ——— ———, D. D. S.

This card it appears was put forth to silence clamors of the sensitive public, who were fearing the heartless mutilation of some needy creature, who would be willing to sell her teeth (why not *his* teeth?) for cash. But the card itself appears a greater enigma than the publication which had produced the clamor. What "great scientific problem" could be possibly solved by the loss of a few teeth by a poor girl, one is at a loss to see.

And what principle could be established as "correct" it would have been well if this D. D. S. had stated. He, however, "believes it to be correct," and if he proves it to be so "the poor will have reason to consider him a benefactor." Benefactors of the poor are not so numerous as they might be, and it is refreshing to know that a process is to be de rived by which this benefaction can be brought about by the loss of a tooth or teeth. Many a dentist and for that matter, a country blacksmith, has been called blessed by those he had relieved of the tooth-ache by sundry violent wrenchings at an offending molar, but here is a man who it seems can only be a benefactor through the agency of the front teeth of a girl of fourteen; to whom he "contemplates no injustice or inhumanity;" and they had not been sound, he adds:

Many people lose their teeth, some from neglect, many it is found by the incompetency of dentists, many from the inherent tendency of all things to go to work and ruin,—except principles. And so our D. D. S., knowing this, and wishing to establish the correctness of a "principle," wants "the" front teeth of a girl fourteen years old; "apply after 3 P. M."

It would have been vastly better for our D. D. S., better for his reputation as a practitioner and as a means of escape from his rather merciless critics—perhaps from the "Society for the prevention of cruelty to animals," if he had written either nothing at all, or else said plainly what is plain to every professional man interested in the case, that he wished to renew the old and long disused practice of transplantation, practised in the last century, and caricatured by Roulordson, a famous artist of his day, a wood cut of which caricature has been lately published in a contemporary Journal; an operation so unfeeling and barbarous as to cause wonder at its ever having been tolerated. That this was the object contemplated cannot admit of a doubt,—no other could be assigned, but, that in this day of enlightenment a practitioner—a D. D. S. at that,—should be so behind the times, so little posted as to the valuelessness of such an operation in view of its great uncertainty is strange.

It is considered by some as an operation of sufficient safety to warrant its occasional performance to extract an abscessed tooth that has defied other treatment, and replace after proper treatment; and even this the returning of a tooth to its own well filling socket is considered as not at all reliable; but that any one in this day should seriously contemplate a revival of the obsolete and cruel operation of transplantation, the mutilation of one poor girls' mouths for the temporary adornment of some one with money, but weak and foolish enough to allow this sort of experimentation is a little startling for this day of dental enlightenment.

In the caricature referred to, two figures are represented as going out of the door, with the money received for their sold incisors, apparently well satisfied.

These are the poor who were "benefacted" ,by the dentist of that day. Is it in this way that our D. D S. proposes to make himself the peer of the Corcoran's and Smithsons', who have conferred on the poor of Washington so many real blessings. Verily, to lose one's front teeth and pay for their extraction is not counted a benefit by any means, and that a remuneration to the amount of even fifty dollars would be considered an equivalent for this loss is hardly to be believed. A later card shows that the Dr. has not given up his idea of getting a front tooth, and he now, it seems does not specify sex. This card is headed

PERSONAL.

$50 is the value that will be paid for the front tooth of a young person, even (though paining and not sound) if answering the Doctor's purpose.

ARTICLE VI.

A Biographical Sketch of the Life of Dr. T. B. Hamlin, of Nashville, Tennessee.

Dr. T. B. Hamlin was born June 24, 1810, at Red Hook, or Hamlin's Landing, on the Hudson River, Duchess Co., New York.

A few months after his birth, his father moved to Windom, west of the Catskill Mountains, where he died, leaving a family consisting of his wife and two sons in destitute circumstances. At the age of sixteen, his mother and brother died, leaving him quite alone. To be thus thrown upon his own resources so early in life, without money or education, was indeed a great misfortune to the object of this sketch, but he wisely and promptly bound himself for three years to a silversmith and watch repairer. During this time he conducted himself so well that his employer sent him to school for six months, and he also, in the latter part of his apprenticeship, received some little dental instruction from a physician who was practicing medicine and dentistry together in the little village in which he lived. At the age of nineteen, young Hamlin sought and obtained employment in one of the largest watch making establishments in the city of Albany, N. Y. His industry and proficiency soon led to his promotion to the responsible position of foreman of the watch making department. In his strenuous exertions to discharge the duties of this important position, he injured his health to such an extent that he was compelled to give up his lucrative and desirable situation and travel for the benefit of his health. After traveling and resting from business for some time, his health improved, and he was induced to return to Albany and resume his former position. His close confinement, however, soon told upon him, and he was forced by a renewal of his disease, to resign his situation finally From Albany he removed to Lee, Mass., where he opened a jewelry store. Shortly after, and at the age of twenty-two years, he married Miss Mary Phinney, a daughter of Anscher Phinney, a highly respectable citizen of that place. During Hamlin's stay in Lee, he was attacked with rheumatism, and this, in connection with his dyspepsia, caused him to look to the Sunny South for relief. In his travels he went to New Orleans, where he spent one winter, deriving great benefit to his health from the change of climate. While in New Orleans he invented an instrument or tool known as the centering or pivoting tool, now in use among all watch makers and repairers.

This little instrument has proved to be a very valuable invention, and if properly managed by the inventor, it might have resulted in great pecuniary profit to him.

From New Orleans, Hamlin moved to Wytheville, Va., where in 1835 he commenced the practice of dentistry, having studied the profession as opportunity offered, ever since he received his first instructions at Windom. Soon after he commenced the practice, he joined the American Society of Dental Surgeons, and ever after was a warm advocate of Dental Associations, and in 1840 he received an honorary diploma from the Baltimore Dental College, a graceful acknowledgment on the part of that institution of his worth and professional excellence.

After ten years practice in Wytheville and vicinity, he moved to Tuscumbia, Alabama, where he practiced his profession two years. In 1847 he removed to Nashville, Tenn., where he bought out Dr. Varcamp, paying him $6,000 for a three-story brick building on Cherry street, built expressly for a dental office. He immediately commenced the practice at Nashville, and for twelve or fifteen years did a large and lucrative business, profitable alike to himself and his patrons; to his patrons from the fact that he served them in such an honest, faithful and skillful manner, as to give them full value for every dollar they paid to him.

While Dr. Hamlin was not as extensively known in his profession as some others, no one stood higher among those who knew him well, and no one knew him well professionally or otherwise, who did not honor and respect him. Soon after he located in Nashville, he wrote and published a little book, called "Importance and Care of the Teeth," and shortly after he published a small work, called "Quackery Unwashed." These little unpretentious publications contained many valuable facts of much interest to the public as well as the profession, and we dare say much good was done by their general distribution.

During his practice in Nashville, he did a great deal in the way of interesting the people in the preservation of their teeth.

From the time he commenced the practice of dentistry, he labored with an eye single to the elevation of the dental profession, believing that to be the true way of elevating himself. The fact that he lived up to this high idea of duty, resulted in his great success, in his rising from obscurity to a very high and honorable position in his profession, and also in the accumulation of a very handsome property; the most of which was made in Nashville during the last fifteen years of his practice. In 1861, owing to ill-health, he closed his professional career, and after traveling four or five years through a portion of the United States and Canada, and regaining his strength to some extent, he returned to Nashville and purchased a farm some ten or twelve miles north of the city.

He immediately engaged with enthusiasm in the bee culture and nursery business. He soon became an accepted authority on the subject of bees, their habits, the best methods of treating them, etc., having been more or less interested in these little creatures many years before giving up his profession. He wrote a very interesting and instructive work on that subject, and received many premiums, medals and diplomas as testimonials of his accurate knowledge of the bee culture.

At the time of his death he owned one of the largest apiaries in the South.

Dr. Hamlin continued to zealously follow this new pursuit up the time of his death, which was on the 24th of May, 1874. He died in the 64th year of his age.

S. J. COBB,
Chairman of Committee on Memorials,
Tennessee Dental Association.

SELECTED ARTICLES.

ARTICLE VII.

An Improved Method of Taking Plaster Impressions.

BY J. SMITH TURNER, M. R. C. S., LONDON, ENGLAND.

I beg to thank you for the honor you have conferred upon me in asking me to contribute a paper to your transactions. I trust this communication will be accepted by you in the spirit in which it is sent; more as an acknowledgement of the compliment you have paid me than for any intrinsic merit it may possess.

The question of plaster impressions has little novelty to recommend it. Like many other questions in our profession, it comes to the front, or falls to the rear, according to the difficulties which beset the more active minded among the rising and the more recently-established members of the profession. The senior members, who have overcome, or think they have overcome, all the difficulties attending any process, are generally contented to let matters rest. They can accomplish all they desire by a system which has become familiar to them by practice, and to the deficiencies of which (this I say with all respect) they have learned to shut their eyes; or if they see them, it is in a light flattering to their own proficiency, which enables them to give a pharisaiacal hug to their superiority. The young members, on the other hand, who are ever looking out for a royal road to excellence, make a rush at the last new thing perhaps to discard it with equal readiness. Plaster impression-taking has gone through those phases, and is likely, in common with other questions, to go through the same again.

There are those who use one material, and those who use another; and there is a large number of men who, while believing in the superior excellence of plaster moulds for almost every case, confess to a want of manipulative skill, or to a want of power over their patients which deprives them, in many instances, of the use of this excellent material. There are also those who timidity deters them from ever commencing its use, while many have yet to learn how to use the more simple materials. It is to the timid and unskillful, with whom I have that fellow-feeling which "makes us wondrous kind," that I would now address myself. If proficients in the art see anything worthy of notice in my plan, I shall be all the better pleased. I am not going to argue the question, nor enumerate the difficulties connected with the subject. Suffice it to say, that objections are raised to plaster moulds for partial cases, owing to the difficulty of obtaining a correct model all round on which teeth can be mounted as well as a plate fitted. To get a good mould involves more endurance than many patients can give, and a great amount of work from the operator, both in breaking up the mould and in piecing it together again.

I propose, by making certain alterations in the tray, and by applying the plaster in a different manner than hitherto, to obviate some of these disadvantages. I convert the handle of the impression tray into a funnel, which opens by an oval aperture on the base plate or palate of the tray, immediately under its external aspect, the lower border of which forms the upper boundary of the opening. The outer end of the handle forms the mouth of the funnel, and this has a rim about the twelfth of an inch wide round the outer side of its free border.

I take an impression in the ordinary way, with wax, but giving no heed to the palate, direct my attention to the outer circumference of the mouth, or, in fact, to every part on which I do not wish the plate to fit.

When I withdraw this preliminary mould, I cut away the wax from wherever I wish my plate to rest, as these are the parts of which I wish a plaster impression. I have then left a wax mould of the front of the remaining teeth and gums, and also of a part of the palate behind that on which I wish the posterior part of the projected plate to rest. My next step is to make air-vents round the margin of the wax. I then oil the funnel, and fix to its mouth, by an elastic band or a piece of string, a small pouch composed of sausage-skin, or some such cheap, yielding, waterproof material; then mixing my plaster in the usual way, I pour it into the pouch through the palatine opening of the funnel The tray is then replaced in the mouth, and held in position by the left hand, and with the right the plaster is pressed out of the pouch, and when it passes through the air-passages with a bubbling sound, you may reckon enough has been squeezed in, and that the impression is taken. The plaster soon became hard enough to admit of the withdrawal of the hand which holds the pouch. An impression thus taken is easily withdrawn from the mouth, owing to the yielding nature of the wax, while all essentials are preserved by the plaster. If a fracture occurs, the plaster is so thick that it is easily pieced. By this process there is no chance of any but the smallest gushing of plaster, which may pass through the air vents getting where it is not wanted. The vents should be made free and wide where they open between the margin of the wax and the cheek or lip, but those in the bar of wax which stretches across the posterior part of the palate should be narrow and V-shaped, the apices resting on the tray. Of these last vents two are sufficient.

I send a model taken in this way, and a tray prepared for taking the same, and if my paper does not prove practical, I hope it may prove suggestive. I may add, that the plaster is best mixed with tepid water as a hardening medium. If a saline be used, it makes the plaster unpleasantly cold.—*N. Y. Odontological Society Transactions.*

American Dental Convention.

The twenty-first Annual Meeting of the American Dental Convention will be held at Long Branch, N. J., commencing on the 2nd Tuesday in August. There is no permanent membership in this organization and no initation fee. Dues are collected only from those attending the meeting. All dentists are cordially invited to be present. Essays will be read, and interesting and instructive clinics given by prominent members of the profession.

AMBLER TEES, *Rec. Secretary.*

Mississippi State Dental Association.

Pursuant to a call for the purpose of organizing a Dental Association, the meeting took place at the office of Miles & Askew, Vicksburg, Miss., April 21st.

Dr. J. D. Miles having been elected chairman *protem.*, and Dr. J. B. Askew Secretary, the meeting was called to order.

A copy of the constitution and by-laws for the organization having been submitted by Dr. A. H. Hilzheim, of Jackson, was unanimously adopted.

The constitution and by-laws having been signed by the members present, the meeting proceeded to the election of members, after which the following officers were elected: Drs. J. D. Miles, President; A. H. Hilzheim, 1st Vice-President; O. B. Hilzheim, 2nd Vice-President; A. Riser, Secretary; J. B. Askew, Treasurer; and an executive committee consisting of Drs. Miles, Askew and A. M. Hilzheim.

Drs. J. B. Askew, B. F. Eager, and C. M. Adams were appointed a committee of arrangements.

On motion of Dr. A. Riser, the convention adjourned to meet at Cooper's Well on the third Wednesday of August, 1875.

The District Dental Society.

The District Dental Society of the seventh judicial district of the State of New York, will hold its Seventh Annual Meeting at Rochester, N. Y., Tuesday and Wednesday, June 1st and 2d, 1875.

The sessions will commence at 2 o'clock of the first day and continue until the close of the second.

Members of the profession from other Societies, States and the Dominion, are cordially invited to be present and take an active part in the discussions.

Peculiar Cases, Incidents of Office Practice, Appliances and Methods of Operating, will be given particular attention.

Dentists who reside in the Seventh Judicial District, and who are not Members of this Society, may make application for Membership, on or before the first day of the meeting, to the Secretary of the Society, or to the Chairman of the Board of Censors.

Officers.—H. S. Miller, President; B. R. McGregor, Vice President; J. Edward Line, Secretary; F. E. Howard, Treasurer.

California State Dental Association.

The Sixth Annual Session of the *California State Dental Association* will be held in San Francisco, June 8th, at 10 A. M., and will continue four days.

The sessions heretofore have been productive both of pleasure and profit; and we hope the approaching one will be characterized by as much unity of purpose and harmony of action as any of the preceding.

While visiting various portions of this coast during the last year, I have been frequently asked the object of this Association.

Its objects I will briefly state: To elevate the character and dignity of the profession; to establish uniformity in practice upon scientific principles; to develop that desire for mutual cultivation, literary research, and scientific investigation, so much needed on the part of individual members of the profession; to establish and sustain, through these liberalizing influences, the professional character of dentists; promoting among them mutual improvement, social instruction, and good feeling, these sessions affording frequent opportunities for an exchange of views in theory and practice; doing away with petty jealousies among neighboring practitioners; and promoting in their place agreeable social relations, benefiting alike patient and operator.

Much good has already been accomplished by this Association; and we do hope that none of its members will "become weary of well-doing."

Its chief object being mutual improvement, social intercourse, and the elevation of the profession, therefore, every member should feel himself called upon to make some sacrifices in order to attend its annual meetings. It is due to himself, to his patients, and the community in which he resides; and in view of these obligations, we sincerely hope every one will make an effort to be present.

During the session there will be a great variety of subjects introduced and discussed of great vital importance to all members of the profession. These discussions are demonstrated by clinical operations in filling teeth, etc., it being a fact admitted by all that there is more practical informaation obtained by clinical operations than by any other means, for it is truly astonishing what rapid progress some of our profession have made by having the opportunity of seeing operations by the most experienced class of operators.

Members of the profession, you cannot afford to remain away from these sessions of the Association. If you do, you cannot give the full benefit of your progressive profession to your patients.

Hoping that you will honor us with your presence at our meeting, I remain,

H. H. Pierson,

President California State Dental Association.

ARTICLE VIII.

Salicylic Acid.

BY WM. TAFT.

Among the many new remedies and the many new applications of old ones that are being constantly introduced into medicine and dentistry, few bid fair to become more prominent than salicylic acid as an antiseptic and disinfectant. Prof. Kolbe, to whom the credit of having introduced it into practice as an antiseptic belongs, had his attention called to it from the fact that it could be readily prepared from carbolic and carbonic acid, and supposed that like them it would retard or entirely prevent fermenting and putrefactive decompositions. He instituted a series of experiments the results of which confirmed his supposition to a surprising degree. He introduced it into the Lying-in Hospital at Leipsic, where it was used with good success. In an article written under the title of salicylic acid, and for the *Deutsche Vierteljahrsschrift zur Zahnheilkunde*, by Dr. Osterman, of Brunswick, reference is made to the experiments of Prof. Kolbe, and says that in consequence of the successful results of the use of salicylic acid in the hospital, he was led to investigate it in its application to dentistry. Dr. Osterman first communicated the results of his observations at the annual meeting of the Central Society of German Dentists.

The following extract translated from the article alluded to, contains some of Dr. O's observations concerning the application of salicylic acid to dentistry.

"In cases where the pulps of the teeth are changed through suppuration and gangrene into a foul, disagreeably smelling, gas evolving mass, it is well known that if they are filled without first restoring them to a healthy condition, periostitis will in all probability result. In such cases I introduce into the nerve canal dry salicylic acid and then make a temporary filling which I allow to remain for several days. In order to make the stopping more secure, I saturate a piece of spunk with an ethereal solution of salicylic acid and with it fill the pulp chamber. The results in a large number of cases were good. The decaying, offensive nerves in the root canals become fully deodorised and shrink into a mumified detritus. Such detrital matter can neither by evolution of gas or putrid secretions irritate through the apicial foramen. I will here remark that it may be difficult to effectively introduce the dry salicylic acid into the root canals. If such be the case we can have recourse with advantage to a concentrated solution of the acid in ether, which will volatilize in a very few moments. This course will be especially indicated in the molar teeth; in the incisor teeth and pulp cavities where cleansing can be conveniently performed it should never be neglected. After washing the canals with the above solution, we saturate a piece of spunk, place in the bottom, and then fill with any material that may be desirable.

In the treatment of suppurating pulps, dry salicylic acid may be employed with advantage. In erosion and in inflamed conditions of the mucous membrane and jaws, I have applied salicylic acid with success. In stomacacea and scorbutic inflammation of the jaws, where the borders and inter-dental papillæ appear degenerated, gangrenous, and are coated with a putrid stringy secretion, I have applied salicylic acid mixed with equal parts of the powdered cassia and cinnamonum with a soft brush. The foul taste accompanying such conditions, also the ill smelling breath soon disappear. It may here be added that in every inflammatory condition caused by roots dead or affected by periostitis salicylic acid will prove an admirable remedy.

Aside from the application of salicylic acid in special cases, I have employed it as an every day means of purifying the teeth and mouth, with the best results.

For a disinfecting mouth-wash: One part of salicylic acid to three hundred parts of water will be sufficient, or if a stronger solution is required, it may be prepared by adding three parts of phosphate of soda and thirty parts of distilled water to one of salicylic acid. It forms a valuable addition to most tinctures and tooth powders.—*Dental Register.*

ARTICLE IX.

Monument in Memory of Dr. Horace Wells.

Nearly a quarter of a century has passed since Horace Wells, the discoverer of Anæsthesia,—a safe, speedy, and effectual means of abolishing sensibility and consciousness, died.

No monument has yet been erected to perpetuate the memory of Dr. Wells, or, in connection with his name, to commemorate this wonderful discovery. He gave most willingly and cheerfully, wishing it, in his own words, to be "free as air," the use of this boon to humanity; asking of his fellow-men, in return, nothing beyond the proper appreciation of its worth, and the honor that justly belonged to the discoverer. As its importance became more widely known, and the world learned by experience the amazing value of the discovery, the feeling was naturally awakened, that some positive movement should be made towards the accomplishment of this long-delayed duty.

Entertaining this sentiment, doubtless, the Legislature of Connecticut, some two years ago, appropriated Five Thousand Dollars ($5,000) for this purpose, and the city of Hartford a like sum; and under the direction of a Committee a colossal statue in bronze of Dr. Wells has been executed by Truman H. Bartlett, Esq., and will soon be ready for erection on some commanding site in the beautiful Park in the city of Hartford, where the discoverer lived, where the grand idea which was to embalm his name and memory in the hearts of his fellow men everywhere, had its birth, and where his remains now rest.

It is upon the Pedestal, which should be also of bronze, and its ornamentation, that any further funds will need to be expended. This will admit of high and costly adornment in bas-reliefs, in inscriptions, etc., suited to exemplify the uses of the discovery, at the same time it commemorates the discoverer; and we are informed by the most competent judges, will admit of large outlay without transcending the limits of a severe and correct taste.

In view of this circumstance, and of the fact, also, that as the subject has been more freely canvassed, an earnest desire has been expressed in many quarters, both in and out of the State, to take part in this undertaking, it has been thought to be expedient, for the purpose of gratifying this wish, and in order to make the work itself more nearly represent the character and value of the service rendered to mankind by Dr. Wells, to receive such subscriptions from Physicians and Dentists abroad, and through their agency from the public, in the various parts of the country, as they may feel disposed to make. Our appeal is made primarily to the Medical Faculty and Dental Profession, not so much because they have a higher personal interest in the subject than others, but because they, of all men, best know the inestimable value of this discovery to the race.

The Committee who submit the foregoing, represent the Medical and Dental Societies of Hartford, and, in so far as our object shall meet the views of our brethren elsewhere, we respectfully ask from them such friendly aid pecuniarily, as they may think proper to give us, and especially that they take such measures to bring the subject to the notice of their friends and the public as, in their wisdom, they shall consider most likely to receive a favorable response.

Letters of inquiry may be addressed to Dr. E. K. Hunt, Chairman of the Committee of the Hartford Medical Society. Subscriptions may be forwarded to Dr. G. W. Russell, Treasurer, Hartford, Conn.

E. K. Hunt, M. D., } Committee of the
M. Storrs, M. D. } Hartford
Jas. Campbell, Jr., M. D } Medical Society.
Dr. Jas. McManus, Dental Committee.

Hartford, Conn., Feb. 15th, 1875.

We approve the object of the Circular, and commend it to the attention of the Medical Profession.

Frs. Bacon, M. D., New Haven.
D. L. Daggett, M. D., New Haven.
C. A. Lindsley, M. D., New Haven.
Dr. H. J. Stevens, Dentist, New Haven.
Gideon L. Platt, M. D., Waterbury.
Geo. H. Waters, Dentist, Waterbury.

New Haven, March 15th, 1875.

I approve the object most heartily, but my best endorsement is the enclosed check for fifty dollars. Wishing your and our enterprise every success, etc.

New York, March, 1875. J. Marion Sims.

The undersigned cheerfully concur in the effort that is being made to commemorate the name of Dr. Wells, in connection with the discovery of the use of Nitrous Oxide Gas as an agent for producing insensibility during surgical operations.

Gerdon Buck, M. D.
A. L. Northrop, D. D. S., 44 W. 46th St., No. 7.
Chas. E. Francis, D. D. S., 33 W. 47th St.

New York, April 13th, 1875.

Colton Dental Association, Cooper Institute,
New York, March 27th, 1875.

T. H. Bartlett—

Dear Sir:—I have received the Wells Circular—or, rather, a proposed copy—and heartily approve of it. I shall this day send my check for fifty dollars to the Treasurer, Dr. G. W. Russell.

Respectfully, yours,
G. Q. Colton.

ARTICLE X.

On the Physiological Action of Arsenious Acid.

Professor Boehm, of Dorpat, records in the *Archiv fur Experimentelle Pathologie and Pharmakologie* vol. ii. Heft 2, his own researches and those of his pupils, on the physiological action of arsenious acid. The experiments were conducted by S. Unterberger upon cats and dogs. On injection of a watery solution of arsenious acid into a vein, a gradual sinking of the mean blood-pressure occurs. The amount of sinking is in direct relation to the quantity of arsenic employed. This sinking is never preceded by an increase of the blood-pressure, and is only temporary when it owes its origin to small doses (0.005 to 0.03 gramme.) At the same time the pulse is rendered slow. These phenomena can be ascribed partly to paralysis of the abdominal blood-vessels, and partly to a diminution of the capacity of the cardiac muscles for action. The cardiac nerves in animals poisoned with arsenic exhibit normal relations. The vessels of the sympathetic areas are not paralyzed by the poison.

The action of this drug upon the intestinal canal was also studied. To arsenious acid is generally ascribed a local irritating action. The chemical reason for this irritating action is quite unknown. This substance exhibits no special affinity either for water or for albuminous bodies. The action of this drug was studied in similar animals (dogs of the same size, age, weight, etc.,) and its effects contrasted according as it was introduced by the mouth or by injection in solution into the circulation. When one has before him two similar animals whch have been poisoned with arsenic, it is impossible from the *post-mortem* appearance to say which of the two animals has received the poison by the stomach or through the blood. Not only so, but the phenomena during life are similar, and the only difference is that the smallest lethal doses when given by the mouth, are not sufficient to kill a similar animal when injected into a vein; and that in the latter mode of poisoning, death always occurs somewhat later than in poisoning through the stomach.

After death no matter how the poison was introduced, the mucous membrane of the stomach throughout its whole extent was tinged dark red, was considerably swollen, and presented a velvety appearance. The redness was always confined to the most superficial layers of the mucous membrane. In the serous membrane of the stomach, beyond a very pronounced filling of the vessels, numerous large ecchymoses were generally present; loss of the substance of the mucous membrane was never observed. The degeneration of the gastric glands, described by other authors in the rabbit, were not found. Essentially different was the appearance throughout the whole length of the intestinal canal. The mucous membrane was covered throughout its entire extent by a yellow coloured, jelly-like, but still consistent membrane about one millimetre thick. Microscopically, this membrane appeared to consist of innumerable pus-cells, embedded in a structureless material. This membrane could be removed, when the mucous coat was exposed generally filled with small point-like ecchymoses. The villi were greatly swollen, and were devoid of epithelium over their entire surface, and numerous pus-like cells were also embedded in their substance. In the other organs, nothing remarkable was found. The liver and kidneys had never undergone fatty degeneration. Ecchymoses in the endocardium of the left ventricle were constant, often also in the other serous membranes. These results are not favourable to the assumption of a local irritating action of the poison. The authors hold as unexplained the action of sepsin to that of arsenic, in that the former exhibits no local action. In the intestine, only traces of arsenic were found on analysis of its contents by the Marsh method.—*London Med. Record.*

EDITORIAL, ETC.

Dental Education.—At the present time considerable discussion is going on in the different dental societies and journals concerning this subject, some writers and speakers criticising and others defending the colleges in their efforts to advance the proficiency of those who resort to these institutions for the purpose of laying the foundation for the successful and scientific pursuit of their chosen profession. That there is a great contrast between the members of the medical and dental professions in this respect, must be apparent to all familiar with the subject of medical and dental education.

While it is rare to find an article in a medical journal, or a speaker at a medical association meeting condemning their own Colleges, or in any way criticising the course of study, except to recommend longer sessions, the case is altogether different with the dental profession. At every dental association meeting and in some of the journals, every possible argument is brought forth to oppose the Colleges and injure the men who for years have been expending labor, and sacrificing time and means in advancing the standard of dental education.

It is satisfactory, however, to know that the great majority of these critics have not been within the walls of any of these institutions for years, and are wholly ignorant of the progress and working of all the old and well established dental colleges, and hence are far from being competent judges. Besides, there are to be found in every community persons who find it much easier to censure than to correct, and also those who imagine that there can be no good in any institution in which they have not a controlling power, or one conducted otherwise than according to their own peculiar views. We venture the assertion and truly believe it to be a correct one, without desiring to make any invidious comparison, that the requirements of all the old dental colleges of this country, are at the present time far beyond what will be found in any medical college, and that more candidates for graduation are rejected, in proportion to the size of the classes, in the dental than in the medical colleges.

We may refer for example, to the late session of the Baltimore College of Dental Surgery, when nearly *one third* of the whole number who composed the senior or graduating class failed to receive the degree of Doctor of Dental Surgery at the final examination. What medical college has rejected so many as unqualified? And yet there are members of the dental profession who either through ignorance or wilfulness continue to harp upon this subject, and cry out that the colleges are not advancing with the demands of the science.

It would be much more to the credit and reputation of such persons if they would imitate the example of their medical brethren and endeavor to support the colleges, being justified in this by visiting these institutions and becoming enlightened as to their doings and workings.

We are satisfied that the Faculties of all the well established dental colleges in this country are doing all in their power to advance dental education, and that the course of study in all of these old institutions is far superior to what it was ten or even five years ago.

We are pleased to see that at a late meeting of the Pennsylvania Odontographic Society, the proceedings of which are published in the *Pennsylvania Journal of Dental Science*, the colleges had some faithful and well informed advocates, as the following extracts will show:

Dr. Allen said that when he hears that dental education has been a signal failure, it carries him back to the time when we were destitute of the splendid advantages we now have. Within the last thirty years there has been as much advance made in dentistry, and perhaps more, than in any other profession. The agitation of this question reminds me of the famous saying of Ajax: "Give me light; 'tis all that Ajax wants."

Dental Colleges are the true exponents of this subject. The system of practical education as well as theoretical, is the only way to establish a true system of dental education. The hands and fingers in dentistry must be educated as well as the mind.

It is therefore best for a student to avail himself of every kind of learning that will have a bearing upon the subject. After all, there is much to be learned by intuition; let the mind be turned inward. The man that thinks he is perfect because he has learned all that the professors can teach him, is a hopeless case. In the best and most hopeful cases mistakes are made by young men in dentistry as well as in medicine.

We should not be divided into specialties. It is an error to have mechanical dentists and operative dentists. The whole field should be taken in, and to meet the wants of the age a well educated dentist must be prepared to take on any case for treatment that may present itself. The result of a division would be to run either branch into mechanical manipulation as the leading qualification, and then instead of a higher standard being followed, the country would be flooded with the worst kind of work. It must be admitted that the mechanical branch is of as much importance as the operative, and that to do such work properly, a thorough study of the action of the muscles of the mouth and face and the part they take in the formation of the contour of the face should be thoroughly understood.

We are called upon to restore lost or absorbed substance in order to reproduce a natural expression. This needs mechanical ingenuity, and theoretical knowledge. It needs an education that calls into action all that is taught in the colleges.

J. Foster Flagg, D. D. S., said thirty odd years ago Hayden, Harris, Parmlee and others were interested in the status of dentistry, as we are to-day. when they started a society and a college to establish a profession. But when an effort was made to obtain medical recognition, they got the cold shoulder. It has been a bloody fight ever since, and those who are ignorant of its progress, are perhaps, the most eager to criticise.

As to a phillippic upon the medical profession, I do not now desire to take up any of your time. I am here to tell you that dentistry as it was started then, has become a live profession, and that the flag is still floating. All I know, and all I want to know about medicine, is that which belongs to, and is taught in the dental Colleges. If a dental education is desired, it must be attained at dental Colleges and nowhere else. It is a preposterous idea to call dentistry into question as a profession.

Though it might not, be as old, it has done as much for science as medicine.

We gave them nitrous oxide and ether, and they gave us chloroform. Dentistry has grown marvelously and is a profession in its literature, its societies and its colleges. You do not find an analogous case in any specialty. It contains all the resources of a living, energetic profession.

Dentistry is enough for me. I am satisfied to be called a dentist. The D. D. S. satisfies my ambition, but the D. M. D. is no title at all; it stands for deficient medical doctor. If the D. D. S. flies, I fly, and if it dies, I die.

Prof. J. H. McQuillen said we live in an age where reform and progress are earnest and active on every side; and to make those elements the more effectual, criticism should be invited, and fairly and truthfully exercised. In the history of dentistry it will be seen that many have entered its ranks from other occupations. Some, who were men of culture and energy, and seeing that dentistry was more than a mere handicraft, exerted their energies and intelligence to raise it to the status of a first-class profession. Step by step the work of improvement was led forward. First a magazine, then an association, and then a college. Hayden, Harris and others made for themselves enviable and imperishable reputations in this work of building up a cultus and a science.

After the establishment of the Baltimore College, delegates were duly appointed, who sought admission as representatives in a leading medical association, but were rejected. A proposition was made by Dr. Gardet to establish a dental professorship in a medical college, but all was rejected on the ground of dentistry being a mere handicraft, Thus to the minds of those positive, progressive men, the establishment of a dental school became a necessity.

What to-day is the course of instruction in the dental colleges? Anatomy, physiology, pathology and therapeutics are taught to the same extent as in medical colleges. At the same time there are established departments, where mechanical manipulation and operative dentistry are taught. Clinical operations are also brought in, and ample instruction given. The student can thus carry out that which he has seen performed by skilled and experienced men. They have ample opportunity to put into practice at the colleges what they learn from the above sources; and if they fail, the demonstrators are there to instruct and correct. Thus the science and art of dentistry is not only alone taught, but the practice also. This cannot be acquired in two four or six years in medical schools. There the mind is crowded by a multiplicity of studies and lectures, and there is no opportunity of acquiring a practical knowledge of the profession. Hence, when a student goes out into the world he is without practical knowledge, and must gain it from experiments upon the theory he may possess, when often the gravest mistakes occur.

There is here no desire to make invidious comparisons between medical and dental colleges. But in their own peculiar spheres the dental colleges have in this particular a signal advantage. The more, therefore, the subject is agitated the more these important advantages in dental education, as it is developed in our schools, are brought to light and they reap the advantage, for they seem to flourish better and are held in higher repute by the masses. These who criticise with so little knowledge, as they seem to possess of the workings and doings of dental colleges, might profit by devoting some to themselves.

Dr. Black's Article on "Gold," which appeared in the May number of JOURNAL, was taken from the *Transactions of N. Y. Odontological Society*, but had previously appeared in the "*Dental Cosmos*" as part of the proceedings of the meeting.

MONTHLY SUMMARY.

Treatment of Cold.—The editor of the *Archives of Electrology and Neurology*, in the number for March, 1874, says:—

We have long been in the habit of using what we call a "cold powder," which we have found of great value in breaking up colds when taken in time, and in modifying their force when taken late. The prescription is as follows;—Dissolve five parts of camphor, in ether, to the consistence of cream; then add carbonate of ammonia four parts; opium-powder, one part. Mix and keep in a tightly corked bottle. The dose is regulated by the opium, and ranges between three and ten or fifteen grains. We have been accustomed to prescribe it for our friends by the finger-nail full, or as much as one can put on a finger-nail. This powder may be taken in a little water just before retiring, by preference, or at any hour of the day, whenever there is a suspicion of having caught cold. If need be, a moderate dose may be taken several days in succession.

The advantages of this powder are very great. 1. The taste is agreeable, or at least it is not disagreeable. Even the bitterness of the opium is mostly neutralized by the camphor and ammonia. No child objects to this powder. 2. It is singularly and inexplicably efficacious. We believe it to be more efficient than Dover's powder, and incomparably more agreeable. In some cases it produces a gentle perspiration; in others, this especial effect is not observed. It is so easy to take, and so harmless in small doses, that it is well and safe to take it whenever we become badly chilled. We first call attention to this cold powder in 1869. From various sources, lay and medical, we hear that it accomplishes all that is here asserted, and we therefore earnestly recommend it to the profession.—*Med. and Surg. Reporter.*

Nelaton's Method of Resuscitation from Chloroform Narcosis·—Dr. I. Marion Sims, [*Brit. Med. Jour.*,] most impressively details his observations respecting the practical workings of the above method. Briefly stated, it consists of in reversing the body of the patient, either by hanging him up by the feet or laying him over a bed or table, so that the blood from the greater part of the body can gravitate towards the head. The tongue is drawn forward by a tenaculum and artificial respiration tried. This practic is based on the theory that death from chloroform takes place from cerebral anæmia.—*Detroit Review of Medicine and Pharmacy.*

An Antidote to Chloroform.—Dr. Schuller has discovered that the nitrite of amyl quickly removes the effects of chloroform on the vessels of the pia mater, and that even in cases of advanced narcotism from the latter drug it rapidly relieves the dyspnœa and labored respiration, restoring the strength of the pulse, and the reflex excitability.. This discovery may prove of much practical value where chloroform contnues to be the favorite anæsthetic.—*New York Med. Journal,* *Solvents for Rubber.*—For the information of correspondents, several of whom have made inquiries on the above subject, we give the following:

The proper solvents for caoutchouc are ether, [free from alcohol,] chloroform, bisulphide of carbon, coal naphtha, and rectiffied oil of turpentine. By long boiling in water, rubber sotens, swells, and becomes more soluble in its peculiar menstrua; but when exposed to the air it speedily resumes its pristine consistence and volume. Industrially, the ethereal solution of caoutchouc is useless, because it contains hardly more than a trace of that substance. Oil of turpentine dissolves caoutchouc only when the oil is very pure, and with the application of heat; the ordinary oil of turpentine of commerce causes india-rubber to swell rather than to become dissolved. In order to prevent the vicosity of the india-rubber when evaporated from its solution, one part of caoutchouc is worked with two parts of turpentine into a thin paste, to which is added one-half part of a hot concentrated solution of sulphuret of potassium in water; the yellow liquid formed leaves the caoutchouc perfectly elastic and without any vicosity. The solutions of caoutchouc in coal-tar naphtha and benzoline are most suited to unite pieces of caoutchouc, but the order of the solvents is perceptible for a long time. As chloroform is too expensive for common use, sulphide of carbon is the most usual, and also the best solvent for caoutchouc. This solution, owing to the volatility of the menstrum, soon dries, leaving the latter in its natural state. When alcohol is mixed with sulphide of carbon, the latter does not any longer dissolve the caoutchouc, but simply softens it and renders it capable of being more readily vulcanized. Alcohol also precipitates solutions of caoutchouc. When caoutchouc is treated with hot naphtha distilled from native petroleum or coal-tar, it swells to thirty times its former bulk; and if then triturated with a pestle and pressed through a sieve, it affords a homogeneous varnish, the same that is used in preparing the waterproof cloth of Mackintosh. Caoutchouc dissolves in the fixed oils, such as linseed oil, but the varnish has not the property of becoming concrete on exposure to the air. Caoutchouc melts at a head of about 256° or 260°; after it has been melted it does not solidify on cooling, but forms a sticky mass, which does not become solid, even when exposed to the air for months. Owing to this property, it furnishes a valuable material for the lubrication of stopcocks and joints intended to remain air-tight, and yet be movable.—*Druggists' Circular.*

Singular Death.—Dr. Wm. E. Rossiter, of Bridgeport, Conn., has just died from the effects of inhaling ether, which he was administering to a patient four weeks ago. It produced symptoms similar to those of typhoid fever and diphtheria.

Death after Intra-venous Injection of Chloral.—The success which has attended a small series of some twenty cases of intravenous injection of chloral seems to have rendered some practitioners overbold, and the worst is that they do not always perceive the cause of fatal results when these have been produced. In a note to Prof. Ore, of Bordeaux, the originator of this practice, Dr Lande relates a case of ovariotomy in which sleep was induced in the space of thirteen minutes, after twenty five grammes of an aqueous solution of chloral, containing five grammes of chloral, had been injected. The insensibility produced was absolute, and the operation, owing to adhesions which had to be ruptured with the hand, lasted about half an hour. The patient soon began to sink, and she died in little more than an hour after the operation had been commenced. There was a moderate amount of hemorrhage, which, in the anæmic condition of the patient, the reporter considers sufficient to account for death. Such a conclusion, however, M Jeannel observes, reporting on the case in the *Union Medicale*, will certainly be disputed, since it is far more probable that death arose from the influence of the anæsthetic directly introduced into the circulation, the effects of which could be neither modified nor arrested. "The whole therapeutical history of chloral," he adds, "should teach us to employ it with the greatest caution. If intra-venous injections of this redoubtable agent can be justified up to a certain point for the treatment of diseases against which medicine up to the present time remains unarmed, such as tetanus and hydrophobia, we refuse absolutely to admit that these injections should replace inhalations of chloroform, the effects of which can be prudently controlled, increased, or interrupted according to the indications furnished by the great organic functions."—*Med. Times and Gazette.*

Intravenous Injection of Chloral for Producing Anæsthesia.—At a late meeting of the Paris Academy of Sciences, M. Ore forwarded particulars of two fresh cases of anæsthesia, produced by the intravenous injection of chloral. In one case the object proposed was to scoop out the tibia on account of caries of the bone, the other was for the operation of ovariotomy. Anæsthesia in both cases was complete, and was neither accompanied nor followed by any accident which could be attributed to the chloral. M. Ore took the opportunity to point out the means of neutralizing the possible acidity of the chloral, a circumstance which might possibly bring on coagulation of the blood in the veins. For this purpose it is sufficient to dissolve one gramme of carbonate of soda in ten grammes of distilled water, and to add two or three drops of this solution to a solution of one gramme of chloral in four of water.—*London Med. Record.*

To the Editor of the American Journal of Dental Science:

In the May number of the Journal, handed me a few days ago, I read with much surprise and regret the remarkable attacks which you have chosen to make upon the Maryland Dental College.

It is exceedingly unpleasant at all times to be dragged into a controversy, which must naturally lead to crimination and recrimination; but for two Colleges in the same city, to get into contention in print, is especially to be deplored and deprecated,—to say nothing of the evil influence it must necessarily have upon the standing of the Journal over which as Editor you have the honor to preside; still, you have left me no alternative but to defend the College with which I am connected, and the responsibility therefore rests wholly with yourself.

Why you chose to publish from an anonymous source, statements in regard to the Maryland Dental College, and its number of matriculants, *which are utterly false*, when you could so easily have gotten at the truth of the matter, *I shall not discuss;* but simply ask in justice to the College of which I have the honor to be Dean, that you publish the address and names of *the eleven*—(11) gentlemen who were matriculants, and in actual attendance upon the school.

1. F. F. Drew, D. D. S., No. 160 W. Madison St., Balt.
2. Wm. H. Gingrich, D. D. S., Reistertown, Maryland.
3. Wm. H. Law, D. D. S., Hayardville, Conn.
4. F. W. Sheild, D. D. S, No. 119 N. Charles St., Balt.

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5. J. Anson Bates, M. D., No. 169 N. Charles St., Balt.
6. Robert B. Cromer, No. 305 Hollins St., Baltimore.
7. Ase. Petit le Brune, No. 128 W. Madison St., Balt.
8. Cyrus M. Gingrich, Reistertown, Maryland.
9. W. C. Greene, M. D., Wilkesboro, N. C.
10. Richard M. Johnson, Louisburg, N. C.
11. Frederick A. Walls, No. 181 E. Monument St., Balt.

In regard to the suggestion from this same *anonymous source*, that the College "would seem to need looking after by its Board of Regents," I will in justice both to our Regency and the College itself, ask the publication of the following papers which would seem to demonstrate the fact most clearly, that the Regents have not been derelict in their duty.

In conferring the degrees, Cornelius T. Hurlbut, D. D. S., of Springfield, Mass., addressed the graduates as follows:

Gentlemen: It affords me great satisfaction to have the pleasure this evening to confer upon you a degree for which you have so nobly striven and honorably won.

It has been the custom of all Dental Colleges in the past, to grant a like degree when the student has passed a satisfactory examination before several Professors comprising the Faculty. The duty of conferring these degrees is wholly confided to the Board of Regents, and men that have had no agency in establishing the Maryland Dental College, yet they have cheerfully consented to assume the duties of their position from a willingness to second the efforts of the gentlemen of the Faculty in building up a school for promoting dental education and elevating the standard of professional attainments. That we might not be remiss in our duty, we have required of you a personal examination, which was highly satisfactory to us and creditable to you, and we say, without fear of contradiction, an examination that was never required of any dental student either in this or any other country. The Regents present not only consider you properly prepared to commence the practice of your chosen profession, but satisfied that the Faculty are eminently qualified for the positions they occupy in the College.

The Regents intended as last year to bestow "Class Honors" upon one or more members of this class, but after the final and thorough examination, we have concluded that it will not be possible to properly discriminate between the members of this class in regard to the efficiencies of scholarship and workmanship. In closing he made the following charge:

As a member of the dental profession you promise to maintain its honors and to labor earnestly to extend its sphere of usefulness, and avoid everything in language and conduct calculated to dishonor the profession. Do you this solemnly promise?

To this an affirmative response was given, and the graduates received their official parchments.

Letter written by the members of the Board of Regents, who were present at our last annual commencement and examinations, to the members of the Board who were absent:

MARYLAND DENTAL COLLEGE.

BALTIMORE, APRIL, 1875.

Gentlemen of the Board of Regents of the Maryland Dental College:

Having attended the closing of the Second Session of the Maryland Dental College, we choose this method to assure you of the prosperous condition and favorable prospects of this institution, in which as honored Regents, you doubtless feel a deep interest.

Our frequent intercourse with the gentlemen composing the Faculty has fully satisfied us of the high capabilities which they possess for the successful discharge of their arduous duties; and you may rest assured students in this College will enjoy the advantages of a most thorough and conscientious course of instruction and preparation for practice in dentistry.

The devotion, zeal and energy of the Faculty have been remarkably displayed in the successful and permanent establishment of a dental school of high standing; and those who occupy the distinguished position of Regents therein will doubtless take great pleasure in using endeavors, according as they may have the power and opportunity, to contribute their influence to increase the efficiency of its management, and to extend the beneficence of its operations.

The gratification and encouragement which it would afford all concerned in the College to see a large attendance at the next annual examination, it is hoped will stimulate the members of the Board to endeavor to be present on that occasion.

Very respectfully,

R. B. Donaldson, *President.*
Geo. S. Fouke, *Vice President.*
R. Finley Hunt, *Secretary.*

This anonymous writer has also promised that he will hereafter bring to light other "invidious acts" of the Maryland Dental College; let him do so, but let them be stated over his own name, and not write under the signature of three little stars.

I hope next time he will be more accurate in his "well known" facts, and if *he too is not also a member of the Faculty of the Baltimore Dental College*, I shall be most agreeably disappointed.

The Editor of the Journal states, that *we* "do not desire the Baltimore College to be confounded with the one in question" (the Maryland Dental College.) *Has it ever occurred to him for a moment that such a confusion might be as objectionable to the one as to the other?*

R. B. Winder, Dean,
Maryland Dental College.

A Protest Against, and Resignation of Dr. Thos. B. Gunning from Board of Regents of the lately started Dental College, in which he dissolves all official connection with the same, and accuses the so-called Faculty of publishing a letter leading to injurious tendencies as regards the manner in which they propose to conduct their institution. Published in pamphlet form by Dr. Gunning.

Dr. Gunning makes use of the following language in regard to this point: "Admit it once, and every city, town or community that can muster a few ambitious dentists, is authorized to have its own Dental College, the requisite being only that the Faculty shall be endorsed by the clergymen, physicians and lawyers of their acquaintance."

This is certainly to the point, and the Doctor's eyes have evidently been opened, and he discovers that "all is not gold that glitters."—*American Journal Dental Science, Under Head of Bibliographical, May*, 1875.

To the Editor American Journal of Dental Science:

Dear Sir.—The general character of the system of Ethics adopted by our profession, and an ordinary observance thereof, should have rendered unnecessary the production and publication of the present paper. There should be no need for me to tell you what course of conduct towards members of the same profession is prescribed by this system of Ethics. This you were doubtless taught when receiving your dental education. My surprise was therefore great when I saw by the appearance of certain articles in the May number of the *American Journal of Dental Science*, that you as its Editor, had joined in an attack on the Maryland Dental College, and on the gentlemen engaged in its management. True, you made the publication of a pamphlet by Dr. Thos. B Gunning, of New York, (which you could not have read in a careful manner,) the occasion of your attack. With that pamphlet I do not propose to deal on the present occasion, but with your attack on the College, the motives therefor, and its justification, if any. In the first place then, Dr. Gunning's quarrel with the Maryland Dental College was not yours of necessity,—only when you made it so voluntarily. It is proper first to look for the justification, because the grounds which would justify this attack, or the want of them, must determine to a great extent the motives therefor. With this object in view it is natural to look at the constituted authorities of the College, and their official action, as well as the regime, both as regards principle and practice adopted by them. Let us take first what you are pleased to designate "the so-called Faculty" "of the lately started Dental College." The following are the names of the gentlemen who compose the Faculty of the Maryland Dental College, and the positions they respectively occupy:

Faculty.—Samuel H. Williams, D. D. S., Emeritus Prof. of the Institutes of Dentistry; Byron F. Coy, D. D. S., Prof. of Dental Surgery; Henry H. Keech, M. D., D. D. S., Prof. of Pathology and Therapeutics; M. Whilldin Foster, M. D., D. D. S., Prof. of Dental Mechanism and Metallurgy; Edward P. Keech, M. D., D. D. S., Prof. of Clinical Dentistry and Materia Medica; Richard B. Winder, M. D., D. D. S., Prof. of Physiology and Hygiene; Samuel M. Field, D. D. S., Prof. of Physics and Chemistry; L. McLane Tiffany, B. A., M. D., Prof. of Anatomy; A. P. Gore, D. D. S., Adjunct Prof. of Clinical Dentistry; C. T. Brockett, M. D., D. D. S., Demonstrator of Practical Dentistry; H. G. Ulrich, D. D. S., Demonstrator of Practical Dentistry; C. E. Duck, D. D. S., Demonstrator of Practical Dentistry; B. W. Barton, M. D., Demonstrator of Anatomy.

Richard B. Winder, Dean of the Faculty,
No. 140 *Park Avenue, Baltimore, Md.*

These gentlemen are well known as occupying positions both socially and professionally among the highest in the community, and as a Faculty, certainly will not suffer by comparison with that of any other dental college. Your remark that "all is not gold that glitters," cannot therefore refer to the Faculty Has it reference then to the Board of Regents? This would seem possible, because Dr. Gunning's resignation and pamphlet, (which latter was made the occasion of your attack,) were based on the action of the Board of Regents. The following list will show who are Regents of the Maryland Dental College:

REGENTS.

Prof. Nathan R. Smith, M. D., Baltimore, Md.
Rev. Richard Fuller, D. D., Baltimore, Md.
Rev. L. F. Morgan, D. D., Baltimore, Md.
Chief Justice Geo. Wm. Brown, Baltimore, Md.
Col. Charles Marshall, Baltimore, Md.
Hon. Edwin H. Webster, Belair, Harford County, Md.

R. Finley Hunt, Dentist, Washington City.
B. F. Arrington, M. D., D. D. S., Raleigh, N. C.
J. G. Wayt, D. D. S., Richmond, Virginia.
James Johnston, M. D., Staunton, Virginia.
Cornelius S. Hurlbut, D. D. S., Springfield, Massachusetts.
George Shindler Fouke, Dentist, Westminster, Md.
George W. Neidick, D. D. S., Carlisle, Penn.
J. R. Walker, D. D. S., New Orleans, La.
J. C. Storey, M. D., D. D. S., Eutaw, Greene County, Ala.
W. W. H. Thackston, M. D., D. D. S., Farmville, Va.
Jas. F. Thompson, M. D., D. D. S., Fredericksburg, Va.
H. A. Lowrance, Dentist, Athens, Ga.
Rev. S. D. Noyes, D. D., Baltimore, Md.
Rev. Jas. D. McCabe, M. D., D. D. S., D. D., Balto. Md.
T. C. Edwards, D. D. S., Brownsville, Tennessee.
Rev. Myer Lewin, D. D., Port Tobacco, Md.
R. B. Donaldson, D. D. S., Washington, D. C.
George A. Mills, Dentist, Hartford, Conn.
Wm. T. Arrington, D. D. S., Memphis, Tenn.

As my name appears among them, I can only speak of my colleagues, and say that their high character and standing as citizens, and their extensive and honorable reputation as professional men, render this *seeming possibility impossible.* Then the justification for your attack must be looked for in the principles upon which the College is established, and the manner in which those principles are carried into practice. Let us see if there is anything wrong on these points. The Maryland Dental College is organized and conducted mainly as other dental colleges are, but some of its features are peculiar to that Institution. Part of these were adopted at the beginning,—the remainder March 2nd, 1875. One peculiar feature is the Board of Regents, a list of its members being given above. The Faculty desiring to give every assurance of the sincerity and earnestness of their purpose to elevate the standard of dental education, very wisely concluded that after leading and instructing the matriculants through the course, they would not sit in judgment on the result of their own labors, and accordingly they elected this Board of Regents and delegated to them the whole power of conferring degrees and of pronouncing upon the qualifications of candidates for graduation, their judgment to be based upon a personal examination of the candidates by the working members of the Board of Regents; that is, those belonging to the dental profession. The records and all concurrent evidence will show that the duties devolving respectively upon the Board of Regents and the Faculty, have thus far been faithfully performed. It was also decided March 2nd, 1875, that the Faculty shall determine by a preliminary examination, the fitness as to moral character and preparation as to previous education of all applicants for matriculation. Also, that knowledge, skill and proficiency in all the requisite branches and departments, coupled with a proper moral character, shall constitute the title to a degree and diploma without special reference to where, how, and in what number of years this knowledge, skill and proficiency had been acquired. Also, that previous to conferring the degrees on graduates, a pledge of honor shall be required of each one, that he will always act with professional honor and in accordance with professional Ethics. Is there anything in all this that "glitters and, though pretending, is not gold?" We who are connected with the College may be prejudiced, but we believe that our action has been founded upon plain, correct principles and sound common sense. If we are wrong, we are willing to be set right. If we are right, those who attack us do so without cause, and unless they can and do show where and how we are wrong, justice and courtesy alike demand that they should make proper amends. With regard to the motives which prompted your attack I decline at present to say anything.

Respectfully, yours, &c.,

R. Finley Hunt,

Secretary Board Regents Maryland Dental College.

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ARTICLE I.

Prevention and Treatment of Decay on Proximal Surfaces of the Teeth.

BY G. H. CUSHING, D. D. S.

The subject is divided into two distinct branches. The first looks only to prophylactic measures—*i. e.*, to the means of prevention. For the proper understanding of this, it is essential that we should define what is, in this paper, understood to be the etiology of dental caries. Without discussing the various theories which have been advanced from time to time, it will be assumed that, although the immediate process of so-called caries is unquestionably a chemical one—being the reaction of an acid upon the lime salts of the tooth—yet that such reaction would not take place, were it not for some constitutional abnormality which impairs the vital force to the extent of weakening the power of resistance to destructive agents, which is inherent in the teeth. Taking, in connection with this, the imperfect constitution of the teeth as a predisposing cause, and I think we have the fundamental elements of the etiology of dental caries. In support of this assumption, we must consider man in his original, primitive condition, when his organization was supposed to be perfect. I take it for granted that the following proposition must be universally accepted as correct, viz: that there was a time when the animal part of man was perfect in form, development and function, and that when living out such a life as would seem to have been intended for him, his teeth would, at its close, present no indications even of what we now know as dental caries. I assume as equally incontestible the position that his teeth, during all his life, were constantly subjected to contact with acids of various kinds—those of fruits, which then, as now, in certain localities, formed the principal part of his diet—and to those produced in the mouth by the processes of fermentation and decomposition, which processes must take place in the mouths of those even in perfect health.

These premises being granted as sound, force the conclusion upon us that the teeth have, in the natural order of things, the power inherent in them of a certain resistance to destructive agents.

Now it is by no means certain that the teeth of men of the present day are subjected to contact with acids to any greater extent than were those of the original man, or that these acids are more powerful in their destructive agency than were those of that earlier time, and yet decay of the teeth is the universal rule at the present day, and probably co-extensive, throughout the world, with the history of civilization. These propositions being thus far granted, we have established the position that the present generation are characterized by an almost universal condition of weakened vital force, as evinced in the proneness of the teeth to succumb to the attacks of agents which, under fully healthy conditions of the body, ought to have no effect upon them at all. The part which imperfect constitutional structure plays in the matter, I do not regard as of great importance; and this condition is chiefly to be noticed as favoring a more rapid destruction of the teeth, where caries once commences. I think the fact of imperfect organization of the teeth, which is often apparent, furnishes a strong support to the first assumption "that caries is mainly dependent upon constitutional causes, which tend to impair the power of resistance of the teeth to destructive agents;" because we often see in the mouths of certain individuals teeth which are evidently of imperfect character, being less dense in structure and showing imperfect fusion of the enamel at the fissures and depressions, which yet remain undecayed, or decay only to a slight extent, although subjected, so far as we can ascertain, to the same destructive agents, which rapidly disintegrate teeth of even better quality in the mouths of other persons.

These phenomena can only be accounted for upon the theory that there is in one case a resistant force at work independent of local conditions, which is absent or held in abeyance in the other. One other fact may be cited, as tending to support the theory here advanced—and that is, the greater tendency to, and more rapid progress of, caries at certain times in the same mouth, and even in the same teeth, as particularly noticed in the case of pregnant women.

Now, it will very properly be asked, "What is the *cause* of this constitutional disturbance, which thus weakens the power of resistance in the teeth?"

The only reply which would seem to be possible to this query, in the present condition of our knowledge is, impaired nutrition.

Vague and indefinite as such a reply must be, it yet probably conveys as intelligible an idea as any more elaborate one would do, and probably as nearly expresses the truth. Back of this, again, comes the inquiry, why this perverted nutrition? To this we can only answer, because of disobedience of nature's laws, in almost every particular. I need not elaborate this point. Every man is conscious that not an hour of his life passes, in which he does not violate some law of nature, setting aside constantly the simplest teachings of common sense for the gratification of appetite, or as a matter of convenience, or from the influence of long continued habit, or from indolence.

To this violation of "Divine law" are to be traced "all the ills that flesh is heir to."

This brings us to the starting point of our subject, that is the consideration of the first means of prevention of decay. It might appear at the first glance, if we accept the foregoing premises as sound, that the prevention of disease would be easy of accomplishment, provided we could induce men to become obedient to law, and to submit themselves to the teachings of hygienic science. The extent of improved bodily and mental condition, which such a change in the order of things would secure, can never be estimated. It would of course be immense, but even were it possible to induce such a change, we should find the benefit to the teeth for a long time after such a revolution was effected, to be comparatively slight, for the effects of inherited disease and increasing degeneracy, extending through many generations, could not be overcome at once, and while the general condition of the body might be made to more nearly approximate health, yet the teeth would be found still to be imperfect, and to be continually yielding to destructive influences.

Theoretically, this treatment should secure the end sought, but practically it would not. Now we must not look at this subject from a purely theoretical stand-point. One of the most important things for us to bear in mind, in attempting to understand subjects connected with the prevention and healing of disease, is that we must recognize the fact that we have to take things as we find them, and to deal with them accordingly. We know that men will continue to act contrary to the teachings of reason, though assured that the penalty must be paid; that however fully we may succeed in convincing their reason we shall fail to control their actions to any great extent, and yet that they will expect us to afford them relief from suffering, whether induced by their own acts or otherwise. This relief we hould be prepared to give to the fullest possible degrees.

So, while we must accord to hygiene all that is due, and must use our utmost endeavors to try to lead men into accord with its teachings, we must not ignore the self-evident truth that our efforts in this direction can be of but slight avail. In view of these facts, we are compelled to seek relief from other sources.

The question then presents itself, what means have we other than those already considered through which to secure prophylaxis? It has been affirmed thot the principal cause of dental caries is to be found in a lessened power of resistance to destructive agents, due to constitutional disturbance arising from perverted nutrition.

Can we then, after having secured on the part of our patients the fullest possible compliance with hygienic laws, and having failed to secure the results to be desired, hope for further benefit from constitutional treatment.

It has long been my belief that the time would come when it would be possible to secure partial relief at least by means of such treatment. We must remember that very little comparatively, can be hoped for from our teaching of hygienic laws, and if it is possible for us to supply nature's deficiencies or counteract the influence of disease by means of medication, or by the administration of concentrated or artificial food, we should leave no effort untried to establish a practice in this direction, which may be relied upon as efficacious and safe in a majority of cases.

It is somewhat surprising, and much to be deplored, that no more has been attempted in this direction by men who are qualified for such experimentation, for it is unreasonable to suppose that with the advanced knowledge of the present day to guide us, and with the resources of chemistry at our hand, no means could be found which would aid us in our endeavors to anticipate disease. It is true that the use of the phosphate of lime has been advocated to some extent, as a prophylactic. Dr. Wescott and Dr. Watt, I believe, have both advocated its use, and claimed that its administration at their hands resulted in marked benefit to their patients.

But the generally accepted views of practitioners of the present day, both of dentistry and general medicine, deny the value of the treatment as a general rule, where the crude phosphate of lime is administered, as it is claimed that it is not taken up by the circulation, that it is insoluble, and is carried off in the excretions unchanged. An article in the *Missouri Dental Journal* for November, 1872, from the pen of Dr. R. Blacke, Laureate of the Medical School of Paris, seems to hold out promise of beneficial results from the use of the recent preparation of the syrup of the lacto-phosphate of lime. The article seems encouraging to us who seek for aid in this direction. The reasoning of the author certainly appears convincing, and his argument does not rest upon theory alone, but is based upon experiments which seem fully to warrant what he claims for the remedy. It is very possible that in this remedy we may find one of the agents which we seek, as a means for the prevention of dental disease. It is certainly worth our while to give it a thorough trial, for without empirical knowledge of its operation, we can form no correct judgment upon its merits. Meanwhile, our attention should be earnestly directed toward the investigation of the various abnormal conditions which unquestionably influence, in some way or other, the progress of dental caries, and our endeavor should certainly be to arrive at a knowledge of such remedies as will cure, or at least ameliorate those conditions.

In what I have said of constitutional treatment, I am aware that I have advanced little that is of any value, except in so far as my remarks may help to stimulate thought and action in this direction, on the part of many men in the profession who are qualified to prosecute such investigations and experiments as shall eventually bring us the desired aid.

It is with the hope that such may be their effect, that I leave the consideration of this point, and turn to consider what other means, if any, there are that are available as in any sense preventive.

It has been established as a fact, from long continued observation, that the teeth are especially liable to decay, in a large majority of cases, upon their proximal surfaces, where those surfaces are in contact. It has also been observed, that where there exists a free and ample space between the teeth, those surfaces are as a rule exempt from caries. These are established facts, not mere theories. These conditions are observed in mouths of every variety of character, and with teeth of corresponding variety. Where the secretions are vitiated and unduly acid, and as well where they are apparently normal and neutral. So fully recognized are these facts at the present time, that it is doubtful if any person could be found to-day who would deny the proposition, that if free spaces naturally existed between the teeth, there would be comparatively little danger of caries attacking those surfaces.

These facts would justify, as entirely reasonable, the proposition that if such spaces could be artificially secured, without injury to the teeth by reason of the operations necessary to that end, then we might feel confident that we had secured a method of prevention which would greatly lessen the sum of human misery, and add largely to the beneficient influences of our calling. In view of the fact that it is more difficult to arrest decay upon the surfaces now under consideration, by the process of filling, that when it occurs in any other locality, and in view of the fact, too, that the majority of teeth which are eventually lost under the hands of skillful practitioners are lost in consequence of decay upon these surfaces, it becomes us most earnestly to inquire if any such method of separation for prevention may be safely pursued, and what grounds there may be to support the hope that such a practice would prove successful.

To secure such permanent artificial spaces, resort must be had to the cutting away of the teeth, by the use of the file or other instruments. The use of the file for this purpose is of old date in the history of the profession, though its application in times past was confined chiefly to the incisor teeth. All the text-books refer to the practice (more generally, however, for the removal of superficial decay, than as a means of prevention,) and none of these entirely condemn it.

Undoubtedly the use of the file, or its equivalent, has been more or less resorted to for the purpose of prevention of decay, by means of creating spaces between the teeth, from the commencement of our life as a profession to the present day; but it has never been systematically recommended until quite recently, when Dr. Robert Arthur, of Baltimore, promulgated to the profession and the world, his "*system* for the prevention and treatment of decay upon the proximal surfaces of the teeth." His method contemplates the general separation of the teeth, by means of cutting away their approximating sides.

In determining the merits of his claims, it is necessary first to satisfy ourselves whether the teeth may be cut away, as he proposes, with safety, or without injury. There was, for a long time, a very general prejudice against the removal of the enamel of the tooth, because it was thought that the dentine thereby exposed, would more readily decay—in fact, that it would be quite certain to do so in many cases, simply by reason of the removal of the enamel. Such a prejudice still exists to some extent, though probably to a very limited degree, compared with a period a few years previous to this.

The fact would seem to be not established, by reason of observations covering a period of many years, that a properly polished surface of dentine, especially when not in contact with any other surface, will not perceptibly be attacked by caries sooner than a surface of enamel under similar conditions. This I assume to be true. Granting this, we must acknowledge that there can be no objection to the cutting or filing the teeth for the reason of supposed injury thereby resulting. Having then satisfied ourselves that there is no just ground of opposition to the *means* which Dr. Arthur proposes to employ, let us further examine *how* he proposes to apply them, and what he expects to accomplish thereby.

Briefly stated, his expectation from this treatment may be summed up thus, quoting mainly his own language: "Decay of the teeth may be *prevented* from occurring at places where it is most destructive, and requires the most difficult, painful and expensive operations for its arrest;" *i. e.*, the proximal surfaces. This is the chief claim, and the one mainly interesting us at this time. I cannot suppose that any well grounded opposition to this expectation can be sustained, provided ample, *permanent* spaces can be secured. It has been already affirmed that ample spaces of a *permanent* character between the teeth, of natural occurrence, would undoubtedly, as a general rule, prevent the occurrence of caries on the surfaces now under consideration. This is again reaffirmed as being a proposition, in view of what experience teaches, of a self-evident character.

His method of *application* of these means requires a somewhat more extended and careful consideration. Let us commence with him at the very first step. He proposes, upon the appearance of the first permanent molars, to cut away the temporary molars, which would then be in contact with them, creating so ample space as to insure the mesial surfaces of the first permanent molars from decay, certainly up to the time of the eruption of the second bicuspids.

There can be no objection urged against this treatment, certainly. But I cannot do better than to quote Dr. Arthur's own language upon this point. He says: "If decay should never attack the permanent molar teeth at the points referred to, even if the separations were not made, the cutting away of these temporary teeth cannot be in any way injurious, as the enamel of the permanent teeth is left intact. * * * But, as almost universally happens, and as has been shown, the permanent molar teeth do decay frequently and rapidly at the points referred to, the service advised must be admitted to be invaluable, if they are protected from an attack of decay."

This seems to me so entirely reasonable, that I conceive it to be only necessary to secure your thought upon this point for a moment, to gain your approval of his system thus far.

The next step in his method is to treat the temporary laterals, when they are in contact with the permanent centrals, as the temporary molars were treated—*i. e.*, to cut them away freely, thereby securing safety to the distal surfaces of the permanent centrals, until the permanent laterals take their place in the arch. This can have no objection urged against it, any more than in the case of the temporary molars. The next step takes us to the mesial surfaces of the permanent central incisors, which are in contact, and which he proposes to treat in the same manner, so cutting them away on their lingual aspects as not to disfigure their appearance in the slightest degree, and yet to leave them in contact at the least possible point; while the proximal surfaces shall be, to a great extent, self-cleansing, and always easy of examination. To this practice, if the premises which, it is claimed, have heretofore been established, are correct, there can certainly be no well grounded objection.

I think it can be safely affirmed—and I do not anticipate that a denial will be offered by any in the profession throughout the land—that such spaces, so secured, and the cut surfaces properly polished and re-polished as often as may become necessary, will render these teeth almost absolutely secure from decay upon their proximal sides. The treatment follows on with the eruption of the permanent teeth, and repeats itself with the six anterior teeth; and no objections can be urged against these subsequent operations that could not have been urged against the very first operations upon the permanent incisors.

We now come to the treatment of the bicuspids and molars, which he proposes to treat upon the same principle.

The only point claiming our particular attention with regard to these teeth is the shape which he gives to the spaces. It is designated as the double V, or double wedged-shaped—that is, as though two wedges had been cut from between the teeth, the base or broad end of one of which should lie toward the palatine or lingual aspect, and the broad end of the other wedge at the grinding surfaces of the teeth. The spaces are shaped thus for the purpose of securing self-cleansing surfaces—or, in other words, so that the food which, in mastication, must necessarily be forced into these spaces, will still be inclined to be easily forced out of them, and so rather be pushed over the surfaces, and not be permanently lodged and retained, and also so that the secretions of the mouth, and more comminuted particles of food remaining after eating, may, by the action of the tongue and the flowing of the saliva, be easily removed, and consequently less of such material be retained to become destructive through the processes of decomposition constantly going on in the mouth. That this peculiar shape given to these spaces is the best that has yet been devised, I think there can be no doubt. It seems to be entirely in accordance with well-known principles of philosophy, and until some other method of shaping such spaces shall be demonstrated to be better, these must remain as unquestionably the correct shapes, when it is decided to separate the teeth at all. Here I must quote from Dr. Arthur, who says, in speaking of the points essential to success: "The separarations must be thorough. No obstructions to the free passage of a piece of thread, or linen, or the tooth-pick, must be permitted to remain. These spaces must be made free *from the grinding surfaces to the gums.* * * * * The teeth may be permitted to touch at some point, but the contact must be so slight as readily to allow the passage at pleasure of the substances employed to cleanse them. The surfaces of the separated teeth must, if possible, be rendered plain. *It is essential that they should be thoroughly polished.*"

I will here quote again from the same author, from different parts of his book. On page 103 he says: "Now let it be clearly understood that this separation of the incisor teeth is *not advised* indiscriminately. The incisor teeth of every child do not necessarily or inevitably decay. There is a small, but it is a very small, number of individuals, who, even at the present day, when the prevalence of decay is so common, pass through life without being subject to decay of the teeth at all; and sometimes, though more rarely, the incisor teeth remain sound during life, while the back teeth are destroyed by decay, commencing on the surfaces in contact. A dentist who is worthy of the name should be able to recognize such cases, and to avoid unnecessary and injurious intermeddling with any of the teeth."

On page 154 he says again: "It will be seen that I do not advise the indiscriminate and almost unlimited filing of the teeth, as has been supposed." And on page 169 he sums up thus: "What I propose is, *the separation of teeth closely in contact*, which are of such frail character, and are exposed to such destructive influences, that their decay is inevitable, or has already occurred."

I have now briefly and imperfectly presented the main features of Dr. Arthur's method, and have endeavored to fairly consider the chief and obvious objections to the proposed operations, as they have been followed in their order. It now remains for us to consider what objections can be urged against the system as a whole, and to discover what lessons experience teaches, by which we may form some reasonable conclusions, regarding the hopes which may be entertained concerning such practice.

Among those in the profession who fully agree with Dr. Arthur's method, as applied to the incisor teeth, there are some to be found who make the objection (inquiringly) as regards the application of the method to the bicuspids and molars, that the spaces he proposes to make will not remain permanently, but will sooner or later become closed, or so nearly so as to defeat the ends for which they were made.

Others again dogmatically assert that they will so close, and no good can result of a permanent character from this treatment of the bicuspids and molars. Now let us consider for a moment what would *seem* to be the probabilities in the case. There can be no chance for an argument respecting the spaces broader at the grinding surfaces than at the necks of the teeth, for they cannot be closed up except in defiance of all laws of mechanical force. As touching the V spaces having their broadest opening at the lingual or palatine aspect, it would be impossible to suppose, even if the disposition of the teeth was to turn on their longitudinal or perpendicular axis, that they would do so sufficiently to materially lessen the spaces between all the teeth, for in that event the teeth would eventually be contracted into the shape of a circle, and that of very small diameter. It is possible that certain individual teeth, or pairs of teeth—as, for instance, the bicuspids—might and sometimes would, incline toward one another, and by rotation lessen, or absolutely close up, the spaces between them; but, in that event, the spaces between each of these teeth and its mesial and distal neighbor would be increased. It is difficult to think it possible for such spaces as Dr. Arthur proposes to make between the molars and bicuspids, ever to become materially lessened by the change in position of the teeth; and I think we must dismiss this ground of objection to the practice, as not being sustained by reason or philosophy.

Another objection suggests itself to many who are mainly in favor of the general plan, and that is, that although the spaces may be ample at the broadest end of the two wedges, yet that the narrowing to a point must be so gradual that they fear the place for the lodgement of decomposing food, or other deleterious agents, would rather be increased than diminished by this proposed separation. It is certainly true that the spaces must be very small, as the sides of the separation approach one another, and though perhaps the teeth are actually touching at only a single point, they still are in so close proximity, unless separated to an extent which I do not understand Dr. Arthur to advocate, as to *seem* in contact for a considerable extent of their surfaces. This would appear to be a possible objection, but experience may teach us that it is unsound. It clearly can have little weight, if the proper care is observed on the part of the patient with regard to cleansing the teeth; nor can I conceive that it should influence us at all, unless we are convinced that the teeth are more exposed to decay than they would be if not separated. And again, I think it would need to be shown that the teeth would decay much more readily when thus separated, in order to counterbalance the benefits which would be derived, of easier access to the surfaces, for the purposes of examination and cleansing.

Another objection, very strongly urged by many, is the great annoyance to the patient, and injury to the gums, from the crowding of food between the teeth, and its pressure upon the soft parts, which would probably result from this treatment. This objection can only be met by the teachings of experience. We need waste no time in argument upon a point which can only be determined by the actual demonstrations of long and various experiments; but it may not be amiss to say that it is very possible that those who urge this objection so strongly do so without fully and clearly understanding the character of the separations proposed, and may have in their minds the complaints they have heard from their patients where the separations were of a very different character.

Again, objection is made to the cutting away of so great an extent of masticating surface. I apprehend this objection cannot stand for a moment, if it is once conceded that Dr. Arthur's method will accomplish what he claims for it. In fact, let this once become established, and all objections melt before the inexorable logic of demonstrated success.

It now remains for us to examine what experience teaches regarding this method, and to inquire if that teaching and the promptings of reason indicate the propriety or otherwise of our pursuing this method.

In the line of the testimony of experience, we have that of Dr. Arthur himself, whose testimony is by far the most important of any others, because his experience extends over a much longer period of time. It may be urged by some that his evidence is not to be too implicitly trusted, because he is an interested party, and that he would naturally think that methods of his own devising were better than all others. This might, or might not, have weight with those who are acquainted with Dr. Arthur; but to those who do not know him, there are some points worthy of consideration in estimating the value of his evidence. He certainly presents a most striking peculiarity in contrast with the large majority of those in our profession who have, or have claimed to have, devised new methods of practice. While most of these have rushed before the profession with their new-born ideas barely crystalized into intelligible form and expression, and have announced their new methods to be pre-eminent over all others, and sure to stand, though unsupported by the test of any experience worthy of the name, he comes to us after, as he tells us, a careful practice of the method for a period of twenty-five years. He presents us this method as the result of very mature and careful thought and study, indorsed by his long experience of its success. He tells us that he did not rush into this practice in a headlong manner, but carefully following the indications of his convictions, step by step feeling his way, he was brought to the conclusions which have resulted in his "method for the prevention and treatment of the decay of the teeth." To me, and I think to most fair-minded individuals, the testimony of such a man, as to even his own methods, challenges attention and credence in no ordinary degree. His evidence is to the unqualified success of his treatment. We cannot ignore his testimony; it must have *great* weight, even if we are convinced that it should be received with some degree of caution. We have no other testimony covering the same ground, but perhaps some may be found tending to corroborate his, among those who have not pretended to follow his method as such. It has probably been the fortune of most of the older practitioners who, from fifteen to twenty years ago, were in the habit of separating the bicuspid and molar teeth, for the purpose of filling, to the extent, sometimes, of sacrificing one-half or two-thirds of their grinding surfaces. I think it cannot have escaped the observation of those who have seen many of this class of operations, that as compared with those equally well performed by others, or even by the same individuals, where the separations had been slight, or only temporary, or without the broad V shape, the first mentioned operations were after the lapse of years, standing evidence not only of the operator, but of the value of the space, as tending to the preservation of the teeth; while those of the other class, even if of much more recent date, would more frequently present the evidence of the necessity for their renewal, even if the teeth were not already so extensively destroyed as almost to preclude the possibility of saving them. I do not refer to isolated cases now, but to observations covering a large number, and where the opportunities for comparison have existed. It has been my fortune to have the opportunity to see a large number of operations, in a large number of mouths, made by the same individual, one of the first operators in the country. These operations have been of various dates, covering a period of eighteen years. The earlier of them were almost or entirely made with the very broad V shape referred to. Some of the later ones were of the other class, such as are denominated contour, or nearly so. The difference has been *very* marked, so much so as to challenge my very particular attention. Others have made the same observations regarding this same gentleman's operations, in other cases which have fallen under their observation, and not under mine. This would seem to furnish a very strong case in favor of the method of using the free opening—much stronger, of course, by reason of noticing the comparative results of the different classes of operations from the same hand, and that the hand of a master, than though the different classes were compared as performed each by a different operator.

Still, the comparison of the results of such different classes of operations, made each by different individuals, must furnish us, if uniform in result, and covering a long period of time, incontestible evidence of the superiority of one or the other method. My own observation, and I doubt not that of most of you, has confirmed the opinion that the broad V-shaped spaces are exceedingly valuable, as securing the greater permanence of operations and preventing further decay on the proximal surfaces of the molars and bicuspids. The separations to which I now refer, the results of which having particularly attracted my notice, have been *very great*, as was mentioned, sometimes to the extent of cutting away one-half or more of the grinding surfaces of bicuspids, and even the same of molars. Now I do not understand Dr. Arthur to propose any such extensive separations, though his work is rather indefinite in its information respecting the width of the spaces. It, therefore, remains to be proven by demonstration whether the smaller spaces with the double V shape will prove as valuable as it seems to be established the larger single V shape is for the purposes under consideration. If we accept the testimony of Dr. Arthur, and give due weight to such other corroborative testimony as observation and experience furnish regarding the effect of spaces between the teeth, I am constrained to think that there can be very little urged against his method that will bear the unprejudiced criticism of reason and philosophy. It is to be regretted that his book was not addressed more exclusively to the profession, and that it does not enter more fully into details of processes—as, for instance, to the breadth of space which should be secured in separating; and in many other particulars it might have been more explicit and more instructive. I had hoped to secure from him a few models to present to you, practically demonstrating the shapes and other characteristics of the spaces which he advocates but he could not furnish them to me, and so we must exercise our own judgment in the matter, and get at an understanding of his method to the best of our ability, unaided by such guides.

Now in view of what has been thus far advanced, may we not hope that a better way is opening before us?

I am not prepared to say that there can be no better way, or to dogmatically assert that such practice as Dr. Arthur proposes will be successful beyond the peradventure of a doubt, but I do think that I may safely ask your most thoughtful and unprejudiced consideration of this method, believing that it does at least lead in the right direction.

There is one point more only, in Dr. Arthur's book, to which I wish to allude, but it seems to me of so much importance as not to justify my passing it by. Page 154, he says:—"I have said that this method of treatment is simple; it is so. All the requisite operations are certainly within the capacity of dentists of very moderate ability."

Here I should take issue with him most decidedly. His language here seems to imply that very little skill is requisite for such operations, an inference which would be likely to lead to most disastrous results, and work serious injury by reason of hurried, slipshod, or insufficient operations of this character. In fact his own language immediately following the above quotation, seems to contradict this inevitable inference, for he says:—"But in order to be effective, this treatment demands the exercise of the nicest care, patient labor, and subsequent watchfulness of the most rigid character. No slovenly or hurried attention will suffice. All successful treatment of the teeth indeed, no matter what plan may be pursued, requires this exercise of care and attention in a much greater degree than is common."

Now my own experience has been that these operations are by no means so easy of execution as his remarks generally throughout the book, would lead one to suppose. On the contrary, I believe that for their most successful accomplishment they require a very high degree of skill. In fact, I have come to think that even the filling of so-called simplest cavities in the teeth, cannot be performed properly without more than a low order of capacity. I think Dr. Arthur has made the mistake that men are apt to make, when writing of practices and methods of which they are master, that is of seeming to underrate the importance of the operation, or the extent of their own ability

Things that are easy of accomplishment to such men may be very difficult to compass for the majority, and one is apt to think and speak of things which are so familiar to himself, as though they would of necessity be just as apparent, or easy of accomplishment to all.

Such an error should be carefully guarded against, and no one should imagine for a moment that the teeth can be successfully treated, without a more than ordinary degree of skill, or by the employment of any but their best and highest endeavors.

We have now considered as fully as such a paper as this admits, the only proposed plan offered as yet, as superior to old methods for the prevention of decay. The treatment of it, after it has occurred, need not occupy our attention for more than a brief reference, as the only peculiar feature which would characterize it, under the method which has been discussed, would be that of the separation to be made, practically the same as those for the prevention.

Of course, after decay has progressed beyond a certain point, its removal by cutting becomes impracticable, and it then only remains for us to fill thoroughly upon the surfaces presenting after the separations are made, in accordance with the foregoing method. I cannot close this already too lengthy paper, without saying that the thanks of the profession are certainly due to Dr. Arthur for thus placing before them a method thoroughly systematiezd (for whether perfect or not, it cannot be all wrong,) as it is the first method having this characteristic, ever presented to us. It is possible that the time will come when we shall acknowledge our gratitude to him for having directed us in a better way, and when our patients, too, will bear his name in grateful remembrance. I think it probable that time will come. Finally, let me urge you again, carefully to examine and test this method, and not to condemn it by reason of strongly fixed prejudices in favor of other and probaly more popular ones. Let its merits alone influence your decision, and if, after an impartial trial, it fails in your judgment to bring the desired results, rest not in your endeavors to attain to a better practice than any now known to us.

In such pursuit alone can we fill the proper measure of our responsibility.

ARTICLE II.

The South Carolina State Dental Association.

The Fifth Annual Meeting of this Association was held on the 4th of May, in the city of Columbia, S. C.

The meeting was well attended, and the discussions harmonious, spirited and interesting.

A Board of Dental Examiners in accordance with the provisions of the bill passed by the Legislature of the State for regulating the practice of dentistry in South Carolina, was elected, consisting of the following gentlemen:

J. W. Norwood, Greenville, S. C.; J. B. Catrich, Charleston, S. C.; J. S. Thompson, Abbeville, S. C; W. S. Brown, Charleston, S. C.; D. L. Booger, Columbia, S. C.

Among the points of interest advanced at this meeting, were the following:

Subcutaneous injections of ergotin and internal administration of same in form of pills for suppression of violent and persistent hemorrhage after extraction; application of actual cautery; white heat by Electricity for same purpose; white heat for painless devitalizing of pulp.

Dr. Rice spoke against the employment of arsenic, and said that he used with entire success a linament consisting of 10 grains acetate morphia to the ounce of carbolic acid, which was almost a specific in his hands—curing the worst form of tooth-ache without devitalizing the nerve.

Flattering results had been experienced by many in the use of preparation of Oxychloride of Zinc, for capping exposed pulps. Some using it directly over the exposed part, some using covering of paper, kid, &c., and some using the white oxide of zinc next the exposed part and filling over this with Oxychloride of zinc, all flooding the cavity before introducing the filling with carbolic acid or creosote, and all using the rubber dam to protect against moisture.

A very favorable report was made by those who had used the "Modling Compound of S. S. White's for taking impressions of the mouth." Report being that it was clean, pleasant to both patient and operator, and taking a sharper impression than many.

A like favorable report was made of Parker & Feague's impression compound, granting to it all that was claimed for it by the inventors.

The following officers were elected to serve for the ensuing year:

G. F. S. Wright, Columbia, S. C., *President;* J. W. Norwood, Greenville, S. C., *1st. Vice-President;* B. H. Teague, Aiken, S. C., *2nd. Vice-President;* J. S. Thompson, Abbeville, S. C., *Corresponding Secretary;* T. F. Chupein, Charleston, S. C., *Recording Secretary.*

The 2nd Tuesday of June, 1876, was selected as the *time*, and Greenville the *place* for the next meeting.

After an address by the retiring President, the meeting adjourned to meet as above.

THEODORE F. CHUPEIN, *Rec. Secretary.*

The American Dental Convention.—21st Anniversary.

The committee have made arrangements with the Proprietors of the *Ocean House, Long Branch,* for holding the *twenty-first anniversary* of the Convention at that place, on the 10th day of August, 1875, at 11 A. M.

The Messrs. Leland have, with their accustomed liberality offered us, (*free of charge,*) a large Hall suitable for our Meetings, also, to deduct 10 per cent. from the bills of members stopping at their House.

Ample arrangements have been made for the exhibition of instruments, implements, material, &c. All manufacturers and vendors are earnestly solicited to make the display as large and complete as possible.

The profession are cordially invited to be present at this, our Quarter Centennial Anniversary, believing it will be of unusual interest.

The Committee will secure rooms for those giving timely notice to the chairman.

J. G. Ambler, *Chairman of Committee,*
25 West 23d Street, N. Y.

American Dental Association.

The Fifteenth Annual Meeting of the American Dental Association, will be held at Niagara Falls, New York, commencing on Tuesday, August 3d, 1875.

The Committee have up to this date completed the following arrangements:

The Cataract House will accommodate delegates at $4.00 per day, and the International at $3.50. Rooms will be reserved at either house for parties making known their desires a few days beforehand. Gentlemen accompanied by their wives should state this fact when ordering rooms.

The New York Central Rail Road will sell round-trip tickets from New York to the Falls and return for $17.50.

The Great Western Rail Road of Canada, will sell tickets for the round-trip at one full fare and a third. Parties desiring to avail themselves of these tickets, should ask for excursion tickets to American Dental Association.

Round-trip tickets from Chicago via. Michigan Central Rail Road, will be sold at $20.00, which is less than one and a third fare.

The Grand Trunk Rail Road will sell round-trip tickets at one fare and a third.

The C. C. C. & I. Rail Road will sell round-trip tickets at the rate of 4 cents a mile one way, to parties of 20 or more.

C. STODDARD SMITH, *Rec. Secretary.*
G. L. FIELD, *Chairman Com. Arrangements.*

BOSTON, JUNE 29th, 1875.

To the Editor of the American Journal of Dental Science.

DEAR SIR.—At a Union Convention of the Massachusetts Dental Society and the Merrimack Valley Dental Association, the enclosed resolution was passed. In compliance with that note I forward it to you with the request to publish in your *Journal.*

Yours, truly,
GEO. F. GRANT,
Rec. Secretary Massachusetts Dental Society.

Resolved, That we the members of the Massachusetts and Merrimack Valley Dental Societies, in Convention assembled, recommend to all dental practitioners the discontinuance of the use of Rubber as a base for artificial teeth, and the adoption in place thereof of Celluloid, believing this course would not only be for the best interests of ourselves but for our patients whom we serve.

Voted.—On motion of Dr. McDougal, that a copy of the above resolution be sent to all the dental journals of the country with a request to publish.

SELECTED ARTICLES.

ARTICLE III.

Salicylic Acid.

The dominion of "elegant pharmacy" has been extended, antiseptics and deodorisers may no longer boast of an exclusive privilege to be as disagreeable and abominable as they please; an aristocratic first cousin to carbolic acid has entered into trade, and is rapidly proving to demonstration the superiority of "blue blood." The advent, commercially, of salicylic acid as a substitute for carbolic acid may well be regarded as a great stride for those who cultivate "elegance" as well as utility and efficacy, for the former substance appears to possess a degree of antiseptic power equal, if not superior, to that of the latter; and while carbolic acid possesses a disagreeable smell and other unwelcome properties, salicylic acid appears as a crystalline powder, nearly colorless, possessing a very faint sweet taste, and almost without any injurious action on the health. We are indebted to the Germans for this conquest, whose labors have been summarized and presented before the Medical Society of the State of New York by Dr. Squibb, in the form of a "Note on Salicylic Acid," which has been printed in advance of the usual "Transactions."

Salicin is the well known vegetable principle existing in various species of the willow, poplar, and other trees and plants. Salicylic acid is a derivative of Salicin; its properties were elaborately described by Piria, and it was subsequently prepared by Lowig and Weidmann from the flowers of *Spiræa ulmaria;* and later, Procter showed that the oil of the winter green, *Gaultheria procumbens*, was salicylate of methyl, in other words, a salicylous ether. As a chemical curiosity it was studied by Gerhardt, Ettling and others.

The little that was known of the physiological and pathological effects of salicin sufficed at least to draw attention to those of its derivatives, and especially to salicylic acid, which has been the subject of occasional comment in the scientific journals for some years past. That it was peculiarly and powerfully effectual to suspend or entirely prevent fermentation and putrefaction has only quite lately been recognized by the Germans, who soon found that its natural sources, as above alluded to, were quite inadequate to enable the manufacturer to produce it in the quantities and at the price that might soon become almost a necessity. Kolbe, Professor of Chemistry at the University of Leipsic, took the matter up, and recognizing the fact that phenol or carbolic acid might be so split up as to produce, among other substances, salicylic acid, he divised a process for its manufacture which is now practically employed at a chemical works at Dresden.

Phenate of sodium is first prepared by double decomposition of phenol of soda, and well-dried carbonic anhydride is then passed through the dry powder at a temperature of 110 degrees to 250 degrees C. The carbonic anhydride combines directly with the metallic derivative of phenol, and alkaline salts of acids of a higher series are formed; among these salicylate of sodium is dissolved in water and treated with hydrochloric acid, which by double decomposi. tion sets free salicylic acid in small crystals. These crystals are washed, dissolved in hot water, and by re-crystallisation obtained in the form of a crystalline powder of a light brown color. The Germans attempt to bleach the product so obtained, and provide an article at a very high price which is sometimes quite white, but most of that in the market at a more moderate price is of a light cream color with a reddish tinge. Dr. Squibb thinks that the unbleached salicylic acid is, probably, of sufficient purity for nearly all, if not all, the practical purposes to which the acid is applied, while expensive chemical processes have to be employed in order to remove the small amount of coloring matter, which more than doubles the cost of production. Common sense seems to show that the coloring matter present is not of a kind, nor present in sufficient quantity, to interfere with the efficacy of the unbleached product, while the high price required for the more or less bleached product would shut it out from employment for most purposes, whatever might be its powers.

Dr. Squibb describes the bleached or unbleached acid as occurring in minute broken acicular crystals, which give it the appearance of a granular powder, soft and smooth under the pestle or knife, but somewhat rough or resinous when rubbed between the fingers. This powder is odorless and nearly tasteless. It has, however, a sweetish and astringent after taste, with slight acridity in the fauces, but none in the mouth ; and though tasteless it leaves a disposition or inclination to expectorate which continues for some time.

Salicylic acid is very difficultly soluble in cold water, but easily dissolved by hot water, alcohol and ether. An aqueous solution containing from 0.2 to 0.4 per cent. of salicylic acid may be obtained by cooling a hot solution, when the excess crystallises out. The acid is far more soluble in water, containing a small portion of neutral salt. In Germany a solution is used for surgical purposes which contains one gramme of the acid dissolved in fifty grammes of water containing three grammes of sodium phosphate. Salicylic acid is decomposed into phenol and carbonic anhydride.

Its compounds with the bases or salts seem difficult to make, but salicylate of zinc, a crystalline salt moderately soluble in water, and salicylate of quinine, amorphous, insoluble in water but soluble in alcohol, have already been prepared in Germany.

Dr. Squibb very properly points out that it is, in all probability, a purely accidental, although a very curious circumstance that a substance of long and well established character as an anti-ferment should offer a molecular constitution so well adapted to be broken up into a still more powerful anti-ferment, for there is no relation whatever, either in composition, or chemical or physical properties between carbolic acid and salicylic acid, except in their effects by similar or altogether different reactions. Accordingly it must not be hastily assumed that in salicylic acid we have simply carbolic acid under a new name, but the compound must be experimentally tested, compared, and then judged on its merits. Numerous experiments reveal the fact that salicylic acid is a powerful antiseptic; indeed it is asserted to be far more powerful and effective in smaller quantities than any other antiseptic. Consequently its innocuous character, and the absence of odour and taste which characterise it, make it immeasurably superior to carbolic acid, which possesses qualities sufficient to restrict its application within very narrow limits. Other advantages which salicylic acid is said to possess beyond all other antiseptics are, first, that it may be used in quantities sufficient to be completely effectual for surgical purposes, and yet devoid of any irritating action on the living tissues, nor does it produce inflammation, nor any caustic or corrosive effect in any quantity. Although the very small quantities that are effectual are quite neutral, it is admitted that large quantities may be irritant or painful, but not beyond what may be described as a stimulant. Secondly, it is said to have power over processes of decomposition which are beyond the reach of all other antiseptics or anti-ferment since it entirely suspends the chemical vitality which causes the production of the volatile oils in mustard, and bitter almonds, the effect of diastase, etc. Thirdly, it has no poisonous effect in any reasonable quantity.

Brewer's yeast does not effect a solution of glucose to which one thousandth part of salicylic acid has been added. Mustard flour, which, when treated with a little tepid water, almost immediately develops a sharp odor of essence of mustard, remains quite inodorous if a small quantity of salicylic acid be added. The action of emulsia, the ferment contained in sweet or bitter almonds or amygdalin contained in bitter almonds only, whereby essence of bitter almonds is produced, is entirely prevented by salicylic acid. Fresh milk mixed with 0.04 per cent. of salicylic acid and allowed to stand at a temperature of 80° F. in an open vessel took thirty-six hours longer to curdle than the same quantity similarly exposed in a pure state. The neutral salts of salicylic acid do not, according to Kolbe, produce this effect, but only the free acid. Beer containing one-thousandth part of salicylic acid did not become sour when exposed to the air, neither did it exhibit any trace of that cryptogamic vegetation which appears on the surface of spoiled beer. Eggs which had been plunged in a solution of salicylic acid for one hour remained unaffected for three months. Fresh meat on which the acid had been sprinkled remained sweet for several weeks. It prevents or arrests the souring of worts, washes and beers of the brewers, and the putrefactive changes which are so troublesome to the glue manufacturers. Urine to which some salicylic acid had been added was on the third day, still clear, and without ammoniacal odor. According to the results obtained by Professor Neugebouer fermentation may be prevented by adding 100 grammes of salicylic acid to 1,000 litres of beer. The same author recommends the use of a very weak solution of salicylic acid to rinse out the wine casks, and thus hinder the formation of mould. Small quantities of salicylic acid would also, in the estimation of Professor Neugebouer, if added to wine, prevent that after fermentation which is the principle cause of muddiness in wines, and perhaps check all the wine diseases produced by the growth of fungi. Professor Kolbe finds that a half a gramme of salicylic acid is sufficient to check the further progress of fermentation produced by the action of 5 grammes of beer yeast on a solution of 120 grammes of sugar in 1 litre of water. It has been suggested that such facts as these will indicate the quantities of salicylic acid to be used in the manufacture of fruit essences, champagnes, beer for exportation; and by way, perhaps of reassurance to those who might object to be dosed continously with a chemical of which we know so little as of salicylic acid, it is stated that Professor Kolbe could take without disturbing his digestion or general health from 1 to 1.25 grammes of salicylic acid per diem either in water or spirit. Surely, however, an isolated experiment of this kind is not enough to establish the harmlessness of the substance so as to warrant the recommenda tion of the substance for general employment in the preparation of articles of food.

Moreover Professor Kolbe proposes to use this substance for the prevention of putrefaction in water stored on board of ships the object to be attained either by dissolving the salicylic acid in the water itself in the maximum proportion of 1 to 20,000, or by covering the bung-holes of the water-casks with cotton impregnated with salicylic acid. Would the salicylic acid be quite harmless if used in the former way? A suggestion which we should feel much less hesitation in adopting personally is that a capital dentrifice may be made by perfuming an alcoholic solution of salicylic acid with oil of wintergreen. Used in small quantities, mixed with luke-warm water, acts as an effectual preserver of the teeth; or an excellent tooth powder may be prepared with salicylic acid. A "sprinkling-powder" for the feet has also been proposed, which acts without checking the perspiration. It should be composed of salicylic acid, talc-powdered soap, and starch. Besides removing odor, it communicates an agreeable softness to the feet.

The phosphate of sodium, solution of salicylic acid was employed by Professor Thiersch to promote the growth of skin over granulated surfaces. Or salicylic acid used alone or mixed with starch was used upon contused or incised wounds, and in operations, with excellent general results, destroying the fetid odor of cancerous surfaces and pyæmic ulcerations. Again, Dr, Fehling, of the Leipsic Lying-in

Hospital, reports its use instead of carbolic acid for disinfecting the hands, sponging per vaginum, for sprinkling puerperal ulcers, etc. For these purposes a solution is employed of from 1 in 300 to 1 in 900, or a mixture with starch-flour in the proportion of 1 to 5.

An emulsion, apparently for internal use, is recommended by Professor Wunderlich, of

	Parts.
Salicylic Acid, - - - - - -	1
Sweet Almond Oil, - - - - -	20
Gum Arabic, - - - - - -	10
Syrup of Almonds, - - - .	25
Orange Flower Water - - - -	45

We cannot over-estimate the importance of that branch of experimental inquiry which deals with such questions as the influence of agents like carbolic and salicylic acids on septic and zymotic poisoning. These investigations should be pushed to their farthest limit, even if not one in ten put forward by chemistry repay the labor of investigation, for it is certainly in this direction of research that medicine must look with greatest hope of success to control those abnormal vital processes which so far may be modified but not stopped. The phenols will always retain their importance among this class of agents, surpassing as they do all that have been tried before them. If salicylic acid should prove another step in advance, the gain will be great, more especially as indicating discoveries which may enable us to wield an undreamed of power against the most frightful and hitherto unconquerable ills of humanity.—*The Chemist and Druggist.*

ARTICLE IV.

Partial Exsection of both Upper Jaws for Enchondroma.

Dr. Porter reported the case and showed the specimen at a meeting of the Boston Society for Medical Improvement.

The patient, a gentleman aged fifty-one, of excellent health, first noticed nine years ago a congested condition around the two central incisors of the upper jaw. These were "pivot" teeth, inserted twenty years before, and as they often became loose, he had been in the habit of replacing the pivots by the ends of matches. There finally resulted a necrosis of the alveolar process around these teeth, which gradually exfoliated. Soon a defined tumor commenced in the above locality, which has been growing for three years. It has been for the most part painless, but has doubled in size within six months. The patient's family history shows no record of tumor.

The tumor now involves the upper alveolar arch nearly symmetrically on both sides, from the first molar tooth on one side, to the corresponding tooth on the opposite side, extending nearly up to the infra-orbital foramina, pushing upwards and forwards the nose and upper lip, producing a very considerable deformity.

The operation for the removal of the growth was performed with ether. A Y-shaped incision was first made, the long arm of the Y cutting through the median line of the lip and the short arms extending, one into each nostril. The coronary artery was controlled by a deep temporary suture in each flap. The soft parts on both sides were then dissected up as high as the level of the infra-orbital foramen, and backwards to the tuberosity of the superior maxilla. The hæmorrhage was readily controlled by sponges stuffed into the wound. The second molar tooth on each side was then drawn, the mucous membrane covering the hard palate cut transversely, and the alveolar process and hard palate sawed through from side to side, and upwards quite into the antra. The anterior wall of the antrum and the nasal process on each side were cut through by a few quick strokes with mallet and chisel, the septum nasi severed at the union with the palate process, and the tumor easily depressed and removed entire. A number of large vessels required ligature, though much less blood was lost than would be supposed from the extensive laceration of the soft parts. The wound was brought together by sutures. The pulse remained good throughout.

The tumor, examined, by Dr. R. H. Fitz, proved to be enchondroma. The patient made a rapid convalescence, and returned home on the eighth day after the operation.

In four months from the first operation, he noticed a return of the growth on each side of the nose,.and when seen two months later, the tumor of the right side was about the size of an English walnut, involving the nasal process of the superior maxilla; that of the left side was similarly situated but less in extent and size, being as large as a chestnut.

Before the operation for the removal of the tumor was commenced, the patient was etherized and tracheotomy was done. Sponges were then introduced into the pharynx to prevent bleeding into the throat. As in the first operation, a Y-shaped incision was made through the middle of the lip upwards into each nostril. The cheeks were freely dissected up, on the right side as high as the inner commissure of the eyelids, and on the left to a level with the floor of the orbit. The bony attachments were then cut with chisel and mallet, the whole nasal process being removed on the right side and nearly the whole on the left. The wound was closed as before. The tracheotomy-tube was left in for a few hours, until all bleeding had ceased, when it was removed and the wound was closed. The patient rallied well from the operation and made a more rapid recovery than on the first occasion, returning home on the seventh day. The tumors, examined by Dr. Fitz, were like the first, but richer in cells.

Dr. Porter said he wished to call attention to but one practical point in the first operation, and that was the small extent of the incision. The Y-shape of the cut through the median line of the lip, into each nostril, made the circumference of the nostril available and gave an abundance of room for the operation; the resulting cicatrix was very small and entirely covered by the mustache. This method of incision, moreover, results in no paralysis of any of the facial muscles. In the second operation, tracheotomy before hand did away with the constant sponging of the throat consequent upon the character of the operation, and also with the danger from blood in the trachea.

Enchondroma of the jaws is a rare disease, and particularly so that of the upper jaw. Mr. Paget says of enchondroma, "On the jaws these tumors are, I believe, very rare. I know but one specimen on the upper jaw alone, reported in "Guy's Hospital Reports." In the *Dublin Quarterly Journal of Medical Sciences* for November, 1857, Dr. Oscar Heyfelder, of Munich, reports only eight cases of enchondroma out of four hundred and fifty cases of diseases of the superior maxilla, and this number includes the one mentioned by Mr. Paget. In the Records of the Massachusetts General Hospital is a case of enchondroma of the lower jaw removed by Dr. H. J. Bigelow. Heath (Diseases of the Jaws) says, "Cartilaginous tumors of the upper jaw are of uncommon occurrence," and mentions two cases not referred to above. The size of the tumors varied from that of a hen's egg to that of a man's head. In two cases, the nasal process only was removed; in another the nasal process and anterior wall of antrum; one partial resection (not defined,) and one total removal of superior maxilla; in three cases no operation on account of extent of disease. I can find but few reported cases of partial or total exsection of both upper jaws. Partial resection of both bones was done in 1824 by Roger, afterwards by Liston and Dupuytren; but the first total removal of both upper jaws was done by Dr. J. F. Heyfelder, of Munich, who did it three times in 1845, and afterwards in 1850 and 1852.—*Boston Med. and Surg. Journal.*

ARTICLE V.

Deleterious Results from Wearing Artificial Teeth Set Upon the Continuous Rubber Base.

BY DR. J. C. C. DOWNING.

CASE I.—Mrs. B. consulted me May 7th, 1874, native of United States, æt. 43, married second time; states that she has been sick, or feeling miserable, for over six months; has been under treatment of another regular physician during that time. Head symptoms: occasional dizziness and confusion of ideas, and sluggishness of the memory; restlessness, and inability to obtain refreshing sleep at night; depression of spirits. Eyes: dimness of vision, muscæ volitantes, photophobia, increased lachrymation; pain, deep seated; from the iritis present, could not obtain a satisfactory ophthalmoscopic examination. Nasal secretions alterting in excess, or deficient. Mucous lining of mouth, throat, tongue, gums, etc., congested, and irregularly covered with various sized patches of superficial ulceration. Painful deglutition, increased salivary secretions. Fetor of breath. Skin of the arms, neck, chest, and to a greater or less extent, the rest of the body, covered with an eruption in various stages of progress, attended with a sense of heat, dryness, and itching. Pains in the bones which are worse at night. Loss of appetite. Irregular menstruation.

As she was wearing artificial teeth at the time of my visit (on account of the soreness of the gums) I did not have my attention drawn to them. Improvement under treatment was slow, with frequent relapses. After three months had elapsed I discovered that, whenever the state of the mouth would allow of it, she wore the articles mentioned above. I examined them, and discovered that the polish was gone, and under a small lens the surface appeared studded with minute excavations, like needle pricks. She had worn them sixteen years, and was incredulous when I asserted that I held in my hands the whole cause of her sickness. Why had they never troubled her before? She consented, however, to wear them only when needed to masticate food, and I directed her husband to apply to them frequently, a shellac varnish. From that time the case was in every way, steadily improved.

Case 2.—Mrs. C., æt. 59; has been in good and improving health. Recently had a change made in artificial teeth worn; now has a set as above. Requested me to examine her mouth. Discovered the mucous lining of lower gums and cheeks congested, tender, and showing several small, superficial, white, eroded, painful spots. Stated it as my opinion, that the mercury used in the manufacture of the plate was being slowly decomposed, from its union to other substances, and was acting both locally, and probably constitutionally. Moreover, on examing the set, I noticed a plug of amalgam in the concave side of the plate, which the dentist had said, was inserted to fill a cavity caused by an air bubble during its manufacture. Mrs. C. then told that her old family physician had given her a similar opinion, of the correctness of which she is now convinced. I would like to ask, are such cases of frequent occurrence? May not such causes be overlooked, if the local effects are not marked, but the general or constitutional ones are?—*Medical and Surgical Reporter.*

ARTICLE VI.

Hemmorrhagic Diathesis.

BY S. B. CHASE, M. D., OF OSAGE, IOWA.

Reviewing some notes of the following case, I thought they might not be uninteresting to your readers.

On Tuesday, July 23d, 1872, I extracted the wisdom tooth from the left side of the lower jaw of A. M. Bryson, a lawyer of this city. Mr. B. is an American, about thirty years age, of full habit, weighing one hundred and sixty pounds, and perfectly healthy.

At the time I extracted the tooth, he informed me he came near bleeding to death from extraction of the tooth in front of it. The first molar had been previously drawn without special hemorrhage. At the time the second was extracted, having bled about three weeks, in defiance of the best medical aid at command, and until nearly exhausted, he stopped the hemorrhage by holding the finger firmly pressed into the cavity, about twelve hours, with the upper teeth shut hard upon it.

I had a vivid recollection of having treated him for epistaxis, in which I succeeded in checking the hemorrhage with full doses of tinct. ferri mur. internally, after having failed with other remedies.

I also remembered having barely saved the life of his little daughter, aged three years, in the winter of 1869 and and 1870, from profuse uterine hemorrhage. She had three successive attacks, at intervals of about four weeks each, ushered in with the usual accompaniments of puberty. This little girl had chicken-pox during the time, and the pustules filled with blood almost as soon as raised. In this case, as in the father's, the tinct. ferri mur. succeeded after other remedies failed.

Mr. B. informed me that he had a brother who had bled severely from the kidneys and bowels for more than a year, occasioned by jumping from a horse.

Although aware of these facts, and admitting the possible danger, I fearlessly extracted the tooth, not entertaining a doubt but I could readily stop the bleeding, should it occur.

The gum appeared healthy, and the tooth came easily; nor did ten drops of blood follow its extraction. After remaining in the office about half an hour, greatly rejoiced at the success, as he had suffered some time from the tooth, fearing to have it drawn, he left for home, free from pain or indications of bleeding.

After about one hour, without premonition, the blood burst forth with great violence. Continuing to bleed profusely, he returned to my office, as I had directed. I filled the cavity with ferri persulph. which at once checked the hemorrhage, and he returned home, more pleased, if possible than at first, both believing the trouble ended.

He went about his usual business that day, and slept well that night. Early next morning the blood again gushed forth. The iron was again used, with perfect success for about ten hours, when the bleeding again burst forth. The cavity was repeatedly plugged, and the iron continued, with slight variation, until Saturday, each period of success shortening, until plugging, compression, and astringents, in every form, appeared to lose control of the hemorrhage.

Every known remedy, both external and internal, was tried without avail. After having been checked a short time the blood would pour out as violently as at the first. It began to ooze from the gums as from a sponge, and by Tuesday evening in defiance of astringents and tonics, aided by the most nutritious diet, the face began to assume a cadaverous expression; the extremitios became cold, and the outlook was about as cheerless as one could well desire. The sufferer had not lain down for a week, and the indication that "tired nature" was about ready to yield the contest was painfully apparent, all the physicians in the place generously aiding in the watchful care, both day and night.

At this stage we used nutmeg, browned like coffee, the panacea of a soldier, and with most astonishing success. The bleeding stopped, as by magic, for about six hours, when out it burst again, as fresh as at first. We repeated this remedy some four or five times, at each time with shortening intervals, until its power was gone. A strong solution of collodion, with all the tannic acid it would hold succeeded for a number of hours once, but for once only.

A free use of kino in the cavity and about the gums, with my finger pressed as firmly upon it, for a number of hours, as the patient could bear, partially checked the hemorrhage: yet a combination of kino, catechu, and tannin appeared to increase the bleeding.

After Tuesday we so far controlled the hemorrhage, that on the whole we made blood faster than the sufferer lost it, thus passing the danger, though by no means relieving the the care or anxiety.

Here was a case in which the "sure cure" of "the oldest and wisest inhabitant" failed, "the vanity of earthly wisdom."

The actual cautery was not tried, as it had signally failed in his previous case. The most vigorous application of arg. nit., used at the earnest request of an able physician, increased the trouble. After thirteen days of doubtful struggle, we finally succeeded with the same remedy which had repeatedly failed us, a plug of persulphate of iron, yet not until the patient had bled at least eight quarts. In a medical journey of about twenty-five years I thought I had traveled over as hard spots as I would be likely to meet, yet can earnestly say, give me a repetition of any of them rather than anothse job like this.—*Med. & Surg. Reporter.*

ARTICLE VII.

Amalgams.

Mr. Editor:—

Among the many and very trying tests recently made of the virtues of the different amalgams in the market, I have not seen the amalgam made by the Chicago Refining Company even mentioned; and it is all the more remarkable because having been on the market for two years or more, and possessing as it does every quality to make it a standard plastic filling. I have used it in my practice for two years, and find nothing to desire in it which it does not possess. I have recently made a few simple tests, which justice compels me to announce through the Journal.

AMALGAM KNOWN AS GOLD AND PLATINA ALLOY.

No. 1. Mixed as usual; washed with soda, and afterwards with alcohol; excess of mercury expressed; packed carefully in pivot tooth; temperature of room, 70°

No. 2. Mixed dry and carefully inserted in pivot tooth without washing.

No. 3. Some of the same mixture, but washed with alcohol; packed in pivot tooth; removing the mercury with a few folds of tin foil under a hot instrument. .

Each No. as soon as filled was dropped in an open mouthed vessel of purple ink, in which they remained four days. The most careful inspection could not detect the slighest leak. No. 1 was broken and both filling and cavity conclusively record no leak.

These experiments with this amalgam bear no relation to those of Dr. E. A. Bogue, of New York, in point of scientific exactness, but are sufficiently so to demonstrate its value over the majority of similar compounds.

In addition to these amalgam tests, I carefully filled a pivot tooth with Hill's stopping, and one with common gutta percha, and immersed in the same vessel of ink, remaining four days. The Hill's Stopping resisted successfully the ink, while the gutta percha was less fortunate, leaking badly.—G. A. BOWMAN.
Missouri Dental Journal.

EDITORIAL, ETC.

The following letter, with the teeth enclosed, was received from Dr. James A. Nash, of Vienna, Georgia, and is the history of a very remarkable case, somewhat similar in its features to the one related by the late Dr. Andrews, of Charlotte, N. C., which appeared in one of the early numbers of the 2nd Series of this JOURNAL. The specimens have been placed in the Museum of the Baltimore College of Dental Surgery, and consist of a cuspid and bicuspid of normal size and form, and quite a number of malformed teeth, some of which are exceedingly small, and all with more or less enamel on the misshapen crowns; several appear to be clusters of small teeth joined in one mass:

"On Jan. 15th, 1874, I was called in to see a Miss Fannie Murray, aged seventeen, daughter of one Mr. Jas. Murray; found the right side of the face very much swollen. The cuspid and first bicuspid on the same side were missing, and the remainder of the teeth in a tolerably healthy condition and formed naturally.

My first diagnosis was abscess in the antrum of Highmore, and I prepared to puncture it, but soon discovered an abnormal growth of imperfectly developed teeth with diseased bone—the bone being in a necrosed condition. After dissecting up the gum, I removed the imperfect teeth, fifteen in number, and very small, and a considerable amount of diseased bone. Puncturing the antrum for further disease, there came at least one ounce of yellow fetid watery fluid, with nearly one-fourth the amount of pus. Upon further examination, I found a tooth of the natural size embedded in the antrum that I removed—it proved to be the first permanent bicuspid—I did no more at that time.

March 1st. I called to see the lady and found by the swollen parts that the disease was not entirely cured. I removed another root, some more bone, and by thoroughly examining with a probe and using a trocar, I found another tooth embedded in the bone at an angle of about forty-five degrees with the nose, and situated just below the infra-orbital foramen. This I removed, and it proved to be a cuspid of natural size and well formed.

Saw the lady again on the 18th of March, and found her doing well—the gums healed by first intention, &c.

I have since seen the lady, and she is permanently cured and not disfigured."

JAMES A. HART.

A Medical Imbroglio.—There was an exciting occurrence at a meeting of the Richmond, Virginia, Academy of Medicine, held June 17th, which resulted in the arrest of several prominent physicians of that city, who were released on bail of $1,000 for a further appearance. On Friday a hearing was had before a Justice of the Peace, when all were discharged except Drs. Hunter, McGuire and J. S. Welford, who were placed under bond of $2,500 each to keep the peace towards each other for twelve months. These gentlemen are amongst the most eminent medical practitioners in Richmond, and the origin of the difficulty between them is thus related: Dr. McGuire was called on about two weeks since to see a lady whose symptoms he found to be very alarming. The usual and simplest medicines in such cases were resorted to, but those failing, and the condition of the patient growing worse, he gave the lady hypodermically five minims of Magendie's solution of morphia. In twenty minutes afterward she expressed herself releived from pain, and the physician left. At twelve o'clock P. M. Dr. McGuire was again sent for, the lady's condition growing evidently and seriously worse, but he being absent from home, the nearest physicians, Drs. Welford and Magill, were summoned. The lady had had a convulsion. Dr. Magill administered an enema of assafœtida and aromatic spirits of ammonia. Soon after convulsion, more violent than the first. Dr. J. S. Welford then arrived, and at his instance another ounce of asafœtida was repeated and an injection of a solution of caffein was made as soon as it could be obtained. A solution of atropia was then sent for. but before it arrived the lady had died. A little later Dr. McGuire arrived, and finding his patient dead, inquired: "Gentlemen, what is your opinion as to the cause of the lady's death?" to which Dr. Magill, after hesitation, responded, "Doctor, if you insist upon a reply, we think she died from opium poisoning." This was regarded by Dr. McGuire as a thrust at his professional skill and reputation, and as soon as the Academy of Medicine met he reported the matter, and asked an expression of opinion as to his treatment of the case, receiving a strong indorsement from a number of gentlemen who spoke upon the subject, and who cited the best medical authorities approving the course pursued. Dr. Mc.Guire afterwards learning that Dr. Welford had made repeated and unprofessional remarks about him, preferred charges, which were referred to the Committee on Ethics. who exonerated Dr. Welford of the charges of unprofessional conduct. Dr. McGuire, at a meeting of the Academy on Thursday night, rising to a personal explanation, stated that he had been met upon the streets and in the houses of his patients by slanders circulated concerning him by Dr. Welford, and he demanded of that gentleman a retraction or a denial that he had spread such reports. Dr. Welford sat on the opposite side of a large table, around which were seated the assembled M. D's. of Richmond, with a pen knife in his hand, paring his finger nails. He did not reply to Dr. McGuire, who thereupon stigmatized him as "a liar and a trickster." As soon as these words were uttered the entire assemblage sprang to their feet, Dr. Welford, with the rapidity of thought, hurling his open knife at Dr. McGuire. The missile passed harmlessly by McGuire but wounded Dr. Harris, who was behind him, in the wrist. A scene of great excitement ensued, which was ended by the arrest of the parties, as related above. Nobody considers the affair ended, and a duel is believed to be inevitable, notwithstanding the principals have been placed under heavy bonds to keep the peace. The Academy of Medicine having appointed a committee to investigate the charges preferred against Drs. Welford and Magill by Dr. Mc Guire, alleging malpractice by which a lady's death was induced the committee report that "after a careful examination and discussion of the evidence submitted to them your committee respectfully report that they find Drs. Welford and Magill not guilty of any breach of medical ethics in relation to the case reported by Dr. McGuire, May 6th, 1875." The committee consisted of F. D. Cunningham, chairman; John G. Skelton, C. Henry Perrow, O. A. Crenshaw, and M. M. Walker. The report of the committee was received and unanimously adopted by the Academy of Medicine.

Celluloid Manufacturing Company versus *Goodyear Dental Vulcanite Company.*—The following correspondence will prove interesting to our readers:

"Dear Sir:—We have received numerous letters from members of the dental profession, informing us that Josiah Bacon, or his agents, seek to interfere with the use of Celluloid as a base for artificial teeth, by asserting that such use is an infringement of the Cummings patent, and by threats of prosecution against all dentists who use Celluloid and refrain from taking out a license from the Goodyear Dental Vulcanite Company.

We caution the profession against being intimidated or deceived by such statements. The use of Celluloid is not an infringement of the Cummings patent; and as for threatened prosecution, we guarantee protection to all dentists in the use of Celluloid against any legal assault that may be made against them on that account.

The following opinion by our counsel, Henry Baldwin, Jr., Esq., warrants us in publishing this guarantee, and we have no doubt will satisfy all who read it that the statements above referred to, made in the interest of rubber licenses, are false and fraudulent."

Yours truly,

CELLULOID MFG. COMPANY, NEWARK, N. J.

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217 S. SIXTH ST., PHILADELPHIA, JUNE 1ST., 1875.

The Celluloid Manufacturing Co.:

Gentlemen:—You submit to me the following letter, viz:

GOODYEAR DENTAL VULCANITE Co., Josiah Bacon, Treasurer.
No. 5 Temple Place, 38 *Park Row, New York.*
Boston, Mass.

BOSTON. FEBRUARY, 15TH, 1875.

Dr. S. H. Wirts, Steel Mills, Ills.

"DEAR SIR:—Yours of the 12th has my attention. Permit me to inform you that the 'Smith case' to which you so aptly allude, has been decided in my favor, and you will find the Supreme Court at Washington will but *confirm* that decision.

Permit me also to inform you that the use of Celluloid is an infringement of our Patent, it being the 'equivalent' of Rubber as stated in our Patent, copy of which I enclose."

Yours truly,

(Signed) JOSIAH BACON, Treas.

"And you ask my opinion as to the truth of the assertion made in the last paragraph 'that the use of Celluloid is an infringement' of the Patent indicated.

I understand the Patent referred to as being the reissue No. 1,904, dated March 21st, 1865, and known as the Cummings Patent, that being the only Patent involved in the Smith case.

In that case the testimony of the Goodyear Dental Vulcanite Company's expert, Mr. Henry B. Renwick, was that in order to get a Cummings set of teeth, you must first have a vulcanizable compound of gum and sulphur, and finally vulcanite. The arguments of their counsel accepted this definition of what is embraced in the Reissue No. 1,904, and the opinion of the Court adopts this construction of the Cummings Patent.

The claim of the Patent is 'The plate of hard rubber or vulcanite, or its equivalent, for holding artificial teeth, or teeth and gums, substantially described.' The specification does not mention any material to be used for forming the plate except soft rubber, or gum, compounded with rubber, sulphur, &c., 'in the manner prescribed in the Patent of Nelson Goodyear, dated May 6th, 1851, for making hard rubber, and is to be subjected to sufficient heat to harden it, substantially as directed in that Patent.' 'After the plate has been heated sufficiently to harden it, or convert it into hard rubber, or vulcanite so-called, the mould is removed and the plate is polished ready for use.'

Any vulcanized plate made from any vulcanizable compound would be comprised in the claim under the words 'hard rubber or vulcanite or its equivalent;' but no plate not vulcanized or made of vulcanizable compound, would come within the claim of the Cummings Patent.

Celluloid contains neither rubber nor any other vulcanizable gum, nor sulphur nor any other vulcanizing agent. Plates made of Celluloid are neither vulcanized nor vulcanizable, and it is not true that the use of Celluloid is an infringement of the Cummings Patent, Reissue No. 1,904, dated March 21st, 1865.

Referring to certain other letters also submitted to me, in which I find it stated that agents of the Goodyear Dental Vulcanite Company are demanding money and claiming license fees under this Cummings Patent Reissue No. 1,904, for the past use of Celluloid, alleging that such use was an infringement of that Patent, I would suggest that each Dentist should protect himself against such unlawful exactions or attempts, by having any person enforcing such demand or claim arrested and dealt with by the proper local authorities, for obtaining money under false pretences."

Respectfully,

HENRY BALDWIN, JR., *Counsellor at Law.*

A Tooth in the Tongue.—The following is being circulated by the newspapers:

The Houston, Ga. *Home Journal* says Mr. Wm. Brunson had a tooth an inch long extracted from the centre of his tongue near the root, one day last week. It was imbedded in the muscles, and entirely disconnected from the jaws or gums.

The two articles published in June number of JOURNAL, from the pens of Drs. Cushing and Turner, on "What our patients may Expect," and "Plaster Impressions," were taken from Volume of Proceedings of N. Y. Odontological Society, and so credited, which was prepared and published by S. S. White for *Cosmos.*

OBITUARY.

Dr. O. N. Allan.—A letter from Danville, Va., dated June 21st, 1875, says:—"This community was greatly shocked on Sunday night last upon their hearing of the sudden death of Dr. Allan, who expired immediately after tea. It appears that he took tea in his usual good health, and was conversant with his family and others up to that time, and immediately after leaving the dining room, went up stairs, leaving the rest of the family at the table, fell and almost immediately expired. Dr. A. had been upon the street in the forenoon, conversing as usual with his friends, and did not express or show any ailment whatever. It is supposed that he died with heart disease. "Truly in the midst of life we are in death."

"Dr. Allan has been a resident of this town for the last twenty-one years, and was a successful practioner in dentistry, was a useful and good citizen, and beloved by all who knew him, and his death is much regretted by the whole community."

Dr. Allan about 25 years ago removed to Danville, where he has lived ever since, with the exception of about two years he spent at Culpeper. All who knew him—and there are many—loved him as a neighbor and friend, and for the goodness of heart. He was aged sixty-five years.

MONTHLY SUMMARY.

The Diagnosis of the "Lead-line."—In chronic lead poisoning a blue line appears on the gums. But this may be simulated by other substances deposited there. Dr. Gras recommends that when we are in doubt whether a given blue line on the gum be due to lead or not, we should excise a fragment of the gum containing the line, with a fine sharp scalpel or the point of a lancet, wash it with a camel's hair pencil, and add a drop of glycerine; if necessary, flatten it out with needles, and examine it under the microscope with a low power. If the line be due to lead, in the midst of the normal tissues of the gum we shall find capillaries injected, filled and obstructed by blackish granules. These capillaries are in loops, or semi-circular, or like double hooks, the outlines varying somewhat according to the section. In very old lead-lines the capillary walls are less evident, and their outlines somewhat indistinct. If a piece of buccal mucous membrane be excised, we should use carmine with glycerine, and a little dilute acetic acid, which shows the mucous papillæ, and the capillary network. He suggests that in fatal lead-colic, the intestinal capillaries and the nerves of the solar plexus should be examined in the same way for lead. It has long since been proposed to examine the lead-line by a simple microscope—or in other words, a one or two inch biconvex lens; when, if in the capillaries, as the true lead-line is, it will be seen clearly to be dotted, and to follow the course of the vessels.—*Med. and Surg, Reporter.*

Cold Powder.—Dr. George M. Beard states that for a long time, with great success, he has used in breaking up colds the following powder:

Camphor, five parts; dissolve in ether to the consistence of cream; then add carbonate of ammonia, four parts; opium powder, one part; mix and keep in a tightly corked bottle. The dose ranges from three to fifteen grains. In a general way, directions are given to take as mnch as can be held on the finger nail. The powder is to be taken whenever there is a suspicion of having caught cold, and repeated as needed, The Dr. says that it is agreeable to take and singularly efficacious.—*Detroit Review of Medicine and Pharmacy.*

Lead Poisoning in Lead Workers.—Dr. Ramskill has given a *resume* of sixty cases of poisoning among white-lead workers, who had been under treatment in the wards of the London Hospital, within the past two years. Of the sixty, thirty-three were males and twenty-seven females. Of the males, the majority were between twenty and thirty years of age, only seven being over forty. The fact that the largest number who were poisoned were under thirty years of age would seem to indicate, he thinks, that the men are unable to work for a long period without suffering. Of the twenty-seven females, three were under twenty, three over forty, and of the remainder, nine were between twenty and thirty, and eleven between thirty and forty. From this it would seem, at first sight, that the women were able to continue at the work longer than the men—but he found, on inquiry, that the latter commenced work earlier in life, and therefore were younger when attacked.

The early or late appearance of poisoning varied with their special employments, the most injurious occupation seeming to be attending to the drying and carrying of the newly dried material to the workhouse.

This newly dried white lead is powdery and easily shaken about, and so may enter the system by the mouth, in respiration, or by becoming intimately mixed with the clothing and infecting the body through contact with the skin.

The treatment at first consisted of removal of the patient from the source of the disease, rest, and in some cases the administration of quinine and sulphuric acid; in others, sulphate of magnesia, followed by iodide of potassium. Two of the sixty patients died—both being young women and sisters, and in each epileptiform convulsions were features of the case. In one, lead was found in the brain.—*British Medical Journal.*

Thymol an Antiseptic and Antifermentative Substance.—At the suggestion of Prof. Liebreich, Lewin has investigated the properties of thymol, and has published a part of the results at which he arrived. He states that this substance, the formala of which is C-10 H-14 C-2, is a benzol obtained by distillation from the oil of thyme, and consists of highly aromatic white crystals soluble in 1000 parts of hot water. A solution even as weak as this exhibits all its peculiar properties. He found that saccharine fermentation was wholly prevented by a 1-16th per cent. solution of thymol, while solutions of carbolic and salicylic acid four times as strong were not nearly so efficacious. The thymol solution also at once arrested a fermentation which had already begun. The quantitative determination of the loss of weight by the process of fermentation gave even more striking results. He found that milk treated with the thymol solution did not coagulate till twenty days later than when mixed with the same quantity of simple water, while it remains perfectly sweet and free from mould at the end of five weeks. The same was the case with white of egg after eleven weeks. Putrid pus, when mixed with the thymol solution, lost its fetid smell, and remained in this condition until it dried up. Urine similarly treated did not on an average show signs of decomposition till the end of five weeks. He declares, moreover, that thymol is capable of arresting or preventing the action of putrid pus upon the animal system, and is decidedly deodorizing. The high price of the article he regards as of minor importance, because it may be used in such dilute solutions. When taken into the mouth a 1-10th per cent. solution caused a slightly burning and astringent sensation. When taken into the stomach it appeared to prevent fermentative changes, but not to interfere with digestion.—*Centralblatt f. d. med. Wissensch.*

Case of Abstention from Food.—The subjoined case reminding us of the "Welsh fasting girl," and Louise Lateau, is communicated to us by Dr. D. R. Silver, of Sidney, Ohio, who vouches for the truth of the report from his own observation. The extract is from a local paper.

"Sarah Brown, daughter of Andrew Brown, of Turtle Creek township, aged about twenty-three years, has been for five years afflicted with an obscure form of nervous disease. For the larger portion of this time she has been confined to her bed. For two years she has been totally blind, and for the same time has been wholly devoid of the power of speech. She lies at the present time helpless as an infant. Her hands are tightly closed, so that if she had muscular power, she could not help herself. At times she has severe pain, cramp, and muscular contractions in various parts of her body. The strangest part of this case, however, remains to be told. At various times during her sickness her appetite has been exceedingly capricious, sometimes for three weeks taking nothing but a little milk. On the first of January of this year she refused to take any food, either solid or liquid, and absolutely continued her fast until the first of March, fifty-nine days in all, and for over fifty days her bowels were in a state of complete constipation. During this time her friends made attempts to induce her to take food or medicine, but without success. Even water having bread soaked in it, and carefully strained, was promptly rejected. Her only ailment was pure water, of which she drank freely. On the sixtieth day she was induced to swallow a little cider, and since that time she has been taking a little solid food. Incredible as this story may appear, this much is certain, that the girl cannot be a malingerer, from the nature of her case."—*Medical and Surgical Reporter.*

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ARTICLE I.

The Causes of Irregularity in the Development of the Teeth.

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The following excellent article from the Transactions of the N. Y. Odontological Society, is taken from the volume of Proceedings prepared by S. S. White, for *Cosmos.*

The subject of "The Treatment of Irregularities in the Development of the Teeth" is forcing itself upon the attention of the dentist with an alarming frequency. In no branch of practice does scientific knowledge seem to be sought with more avidity than in this direction. The tediousness of many of these cases; the inventive skill required to make successful appliances; the doubt always hanging over the final result; the lack of appreciation often of the highest order of professional skill; the absence of a prospective remunerative fee, as a stimulant; together with a want of knowledge of the causes operating to produce such an un-toward result, combine to make these cases the "*bete noir*" of dental surgery.

As the highest order of scientific investigation is now directed more to the prevention of disease than to its remedy, no more important subject can now engage our attention, than an inquiry into the origin of these deformities, and of some means to be used to prevent their recurrence in our offspring. And here, upon the very threshold of our research, we are confronted with the paucity of our knowledge, and the feebleness of our abilities; for science never has and never can discover the primary cause of any one of the phenomena of nature. With all her efforts, she has succeeded in penetrating only a little further into the unknown, leaving the origin still as dark and mysterious as ever. Nevertheless, there are operations in nature which, for the purpose of science, may be denominated primary causes, which may be discovered, measurably controlled, and their disastrous influences averted.

Many of the forms of irregularity are directly traceable to inheritance, and are transmitted peculiarities. Probably in a very large proportion of cases where the irregularity in a dental arch is confined to one or two teeth, the primary cause, so far as that individual is concerned, is an hereditary family peculiarity.

The teeth of every person possess more or less individuality and most of those peculiarities which stamp their individuality are inherited. The form and color of teeth, when not disturbed by abnormal influences, are derived from the same source.

Whenever we find any departure from what we are apt to regard as the typal form of each tooth, or any disproportion of size in their relations to each other, we shall be likely to find them peculiarities of descent.

The transmission by inheritance of a predisposition to a defect or a deformity, is the result of the same general law of nature which gives the form and features of progenitors to their offspring.

In the light in which we are now discussing this subject, it would be unprofitable to attempt to discover the cause of the minor peculiarities in dental development, which have clearly an origin in the ancestry of the individual. An investigation of this character would involve the discussion again of the "Origin of Species," and we should be compelled to admit,—as we have heretofore and must always hereafter,—that there lies a cause beyond all that we can comprehend, and which never can be reached by finite minds.

It is certainly a most wonderful subject for contemplation that, at some remote period in the history of our progenitors, nature departed from her normal type, and a dwarfed lateral incisor, a twisted canine, or an undeveloped bicuspid was the result; and following down the line of descent, we find precisely the same peculiarity appearing and reappearing; not always confined to the direct line, but continuing in the same family, by passing to the children of the brother or sister, and always presenting characteristics identical with the antecedent type.

"There is an ingrafted tendency in all living organized matter to reproduce itself."

It is yet to be determined whether the correction of the irregularities of the dental organs exercise any influence upon the offspring. That the correction of a congenital deformity in a parent will prevent its transmission, is no more to be supposed than would be the expectation that if we removed all the eyes from the present generation, the next would be born blind, excepting in so far that we have a right to expect that, in a transmitted deformity, nature will be making a constant effort to return to the normal type, while a created deformity would be by nature ignored.

Irregularities, either in the form of the arch or the position of the teeth, are very uncommon in the deciduous set. I have never seen an irregular arch in a child prior to the eruption of the permanent teeth, unless associated with and correlated to some other deformity. I have in a few instances seen a slight malposition of one or more of the incisors, sometimes of congenital origin, and sometimes the result of mischievous habits; as, for example, the two centrals may be pulled forward out of line by the prolonged use of an artificial nipple, sucking the thumb, or other similar habit. Of congenital deformities, it is rarely more than a trifling displacement of one or two of the incisors; but considering the temporary character of the deciduous teeth, and more especially the incisors, no irregularity in their position, that I have ever seen, can be regarded as having any material bearing upon the greater subject now under discussion.

They are to be classed as mere freaks of nature, not associated with nor indicating any other peculiarity in the child. Nor does it by any means prognosticate an irregularity in the development of the second set. This important fact cannot be too prominently borne in mind. The deciduous dental arch is always well formed, and the positions of the teeth are regular (mere freaks of nature excepted.) And from this perfectly symmetrical dental arch there develops with the growth of the permanent set some of the most astounding abnormalities.

These peculiarities of the permanent it is unnecessary to describe in detail. In the departure from symmetry they assume almost every variety of position, so that it would be almost impossible for the human mind to conceive of an irregular arrangement which would not find its counterpart in nature.

These variations are recognizable by every one of extended observation, and are deformities, because they are a greater or less departure from a normal standard. Such a standard cannot, in the very nature of things, be one shape to which all must conform or be classed as deformed.

Symmetry and harmony do not imply uniformity; and the dental arch may be developed up to the highest type of perfection, and yet there exists as great a variety of form as there would be in the faces of the aggregated beauties of the world.

Races, nations, and families are thus represented without deformity.

The normal type of the dental arch I conceive to be a regular line; the arch may be wider or narrower, varying somewhat in individuals or races, but the line would be an easy, graceful curve, without break or tendency to form an angle.

Within certain limits a narrow-dental arch, as associated with certain features, may become the very perfection of beauty, while with another form of head and face the wildest development may be equally pleasing. That which is recognized now as the standard or full measure of beauty, as well as of utility, is not unlike that which existed in the remotest historic ages, nor different from that which is now exhibited among all communities not degenerated by luxury or vice.

I have recently held a most interesting conversation with Dr. Nichols, who has spent twelve years in the Rocky Mountains and on the Pacific Coast, during which period he has examined the mouths of thousands of Indians and Chinese. He informs me that he never saw an instance of irregularity of the teeth in either of those races, with but one exception, and that a displaced canine in the mouth of a Chinese woman. The jaws of both races are universally well formed and amply developed. This is the evidence of an expert,—Dr. Nichols being a practitioner of dentistry. And this is also true of all semi-barbarous and savage races of good physical organization.

In 1864, Messrs. Cartwright and Coleman, of London, made an examination of some two hundred ancient skulls in the crypt of Hythe Church, Kent. These skulls, of which there is no authentic history further than that they have been there for centuries, were apparently of both sexes and all ages.

The maxillæ presented in all instances unusually well developed alveolar arches. The teeth were remarkable for regularity of position, only two deviations being noticed; one upper canine shut within the lower jaw on occlusion, and one bicuspid was turned upon its axis, and there might have been other slight irregularities which were unnoticed; but in no single instance was there anything seen approaching to that which, under the term "contracted arch," so commonly exists in the present day.

The average width of the dental arch in these skulls from the outside of the first molar to the corresponding point was two and a half inches.

In 1869, Mr. John B. Mummery, of London, contributed to the Odontological Society of Great Britain the most valuable paper on this subject which I have ever read. I accord more importance to his personal examinations than I do to the observations of any man not a practical dentist. The statements of all others, even those of ethnologists, being less precise, and more general in their character, must be accepted with some allowance. He examined all the available skulls of ancient races, and of modern uncivilized races, to the number of about three thousand, and tabulated more than one-half of them, which were classified as follows:

Ancient British, 203; Roman British, 143; Anglo-Saxon 76; and Ancient Egyptian, 26.

Of modern uncivilized races; North American, 145; Polynesian, 204; East Indian, 223; African, 438; and Australian, 165,

From a careful analysis of the measurements given in his tables, I find that the average width of the dental arch from first molar across to first molar, in the skulls of ancient races, was a trifle less than two and three-eighths inches; the same measurement of the uncivilized moderns showed an average width of a trifle above two and a half inches.

The narrowest measurement given by him of any skull of any race is two and one-eighth inches.

The highest average of any race is nearly two and three-quarter inches, and these belong to the New Zealander, the Fejee Islander, and the Ashantees.

The narrowest average was found among the Hottentots and Bushmen of South Africa.

In these tables we have abundant evidence that the full measure and type of both dental and maxillary arches has been sustained among all peoples of simple habits and thoughts in all ages.

The standard of normality of the dental arch is a curved line expanding as it approaches the ends, and the teeth all standing on that line.

Abnormality will include such a shape of the arch as is not in harmony with the surrounding features; all crowding and twisting; and all departures from a regular line in the positions of the teeth.

Almost the only answer received by the dental student as to the cause of these irregularities has been "premature extraction of the deciduous teeth," and consequent contraction of the jaw; and this answer has been almost universally accepted without a question as to its philosophy. A few facts have been correlated, and a conclusion as unscientific as it is erroneous arrived at; and to the anxious inquiry of the parent has come the charge made against some other dentist of gross malpractice.

It is only within a few years that any one has been bold enough to doubt the universally accepted theory which so glibly accounted for every presentation of abnormality. Among those who have pronounced this ground as untenable, and publicly given their arguments, may be mentioned Messrs. Cartwright and Tomes, of London, and Dr. Forbes, of St. Louis.

Their arguments are based upon the deductions of science and the observations of facts, and are also confirmed in the experience of others.

The premature extraction theory rests upon the supposition that the jaw-bone contrasts upon the removal of the deciduous teeth. The fact seems to have been entirely ignored that the teeth and alveolar processes are a superstructure of the jaw-bone; growing upon it; fulfilling their destiny, and passing away without disturbing the foundation much more than an oak disturbs the planet upon which it has been sustained.

There exists a period in the history of the maxillæ when it is itself an entity, and prior to hardly a trace of the subsequent superincumbent structures; and in the ordinary course of nature there comes a period at the other end of life when equally all trace of dentition is gone and the maxillæ remain an undestroyed entity.

While the proofs are conclusive that the jaws are developed independently of the teeth and alveolar processes, and that no ordinary surgical interference with the teeth or processes impedes or impairs that development, and while it may also be true that all the primary teeth may be removed long anterior to the period of eruption of the permanent ones, without retarding their development or impairing their regularity, the doctrine may still be correct that the too early extraction of some of the temporary teeth will be likely to result in a crowded and abnormal condition. This result is not as likely to show itself with any other teeth as with the canines.

Let us look carefully into the order of the eruption of the permanent set in the regular economy of nature. It will be admitted that for every individual tooth of the deciduous set there is a permanent one lying underneath it in process of formation, and that in due time a deciduous tooth will loosen and fall out, and a permanent one will take its place.

In a normal state there will occur no interference and no irregularity. The central incisors will first appear; then the laterals; after that the bicuspids; and lastly the canines. Each predecessor of a permanent tooth will maintain its position until about the period of the emergence of its successor. There would be no contraction of the alveoli, because there would be no opportunity for it.

But taking now a disturbed, instead of a normal condition, let us see the result.

Remove for any cause one after another, or all at once, of the temporary set, and the period of development would not be interfered with, but the arrangement in the arch might be impaired.

The centrals would find a place without difficulty,—so would the laterals; the bicuspids would be pretty certain to have sufficient room, as their diameters are generally less than their predecessors; but when these teeth were all fully erupted, it would be found in a majority of cases at the present day that the first bicuspid and the lateral were nearly or quite in contact, filling the space destined for the permanent canine, which must now emerge either anteriorly or posteriorly to its true position, showing conclusively that if the alveolar arch had not contracted, the contiguous teeth had encroached upon the space destined for the canine, and forced it out of position. In either case it was the unquestioned result of the too early removal of the deciduous canines, for no one will doubt that, had the temporary canines been allowed to remain, they would have prevented contraction of the alveolus or an encroachment on their domain. It may be argued that if the original direction of the canine was correct, it would force itself between the lateral and bicuspid, thus making way for itself; but this is against the experience of nearly all observation, and very naturally so.

Admit the fact that from some cause or other the bicuspid and lateral come into contiguity, and from the tardiness of the erupting canine, it will find solid and unyielding roots to contend with, which will necessarily force it out of the dental arch.

Mr. Tomes relates a case in which he removed, for cause, from a child, all of her deciduous teeth prior to the eruption of any of their successors, so that for a time the gums were edentulous; nevertheless, in due time the permanent teeth developed in perfect regularity of sequence and of symmetry·

While Mr. Tome's report shows that no abnormality followed the removal of all the teeth at once, such a result is to be feared from such a practice, and most certainly will ensue if there be not a coincident, independent, and ample development of the maxillæ. Cases are coming constantly under our observation where from some cause the temporary canines have been sacrificed, the space closed up, and the permanent teeth malposed, with little hope of their ever assuming, unaided, their rightful positions.

From this there can be but one deduction,—which is, that whatever may be the inducement to remove any or all of the deciduous teeth prior to their period of shedding, the canines should be retained until there is ample evidence of their permanent successors.

How much of the malposition of the permanent teeth is due to the prolonged presence of the temporaries, is, I think, still an unsettled point.

Although absorption may be proved to be an independent process, and in no wise connected always with the progress of an erupting tooth, nevertheless, the cases are so common in which the absorbed portion of the deciduous tooth corresponds so accurately with the new crown, as to force upon us the conviction that it is influenced by it, and therefore that if the permanent tooth had persisted in the right direction the deciduous tooth would have become displaced.

The question very naturally arises, is the presence of the deciduous teeth the *cause* or the *effect* of the irregularity? If their presence be the cause of irregularities, then it is manifest that in this generation of malposed teeth it is our duty to anticipate the trouble, and at an early day remove them, before even it is possible for them to give a wrong direction to their successors. Whether their presence be the cause or the result of the malposition, this we do know, that when a permanent tooth has erupted, and its deciduous predecessor has not been removed, the immediate extraction of such tooth will go very far toward the complete correction of the deformity.

I do not see in this very common fact any greater evidence that the presence of the temporary tooth caused the irregularity than that the position and tendency of the permanent tooth was originally wrong. It is quite as reasonable to adopt the latter view as to suppose that the function of absorption was arrested, and by that the tooth was turned aside.

In seeking information of the causes of irregularity more with a view of discovering some means of prevention than of correction, it was with some disappointment that I read Mr. Tome's explanation of certain abnormalities which he had observed, described and treated.

For example, in describing cases which are not uncommon where the upper front teeth project unduly, shutting over the lower lip, he says:—

"The deformity may result from excessive development of the alveolar processes of the anterior part of the upper jaw, but more commonly we shall find that the molar teeth are unusually short, thereby allowing the incisor teeth of the lower to press unduly upon the inclined lingual surfaces of the teeth of the upper jaw. The upper teeth yielding the pressure, are forced outward, and are retained in the malposition by the teeth which have led to the displacement. If, in cases resulting from the latter cause, the inquiry be extended to the condition of the lower jaw, it will be found that with the short molar teeth we have a short alveolar range and short rectangular ramus. This conformation is probably the primary cause of the mischief."

Again he says,—

"The condition under consideration may also arise from the tardy eruption of the molar teeth leaving the incisors to act for a time upon each other, as they do when from any cause the back teeth are lost. Then again, the incisors of the lower jaw may attain an unusual height, or they may project in an unusual degree, and produce the mischief. Or the result may be consequent upon a regular linear arrangement of large teeth in a jaw having a small alveolar base, in which case the teeth prior to their eruption will assume an unusual anterior obliquity."

But may we not very pertinently ask, What was the cause of the "excessive development," the "short molar teeth," the "short alveolar range," or the "short rectangular ramus?" The explanation can be regarded in no other light than a description of antecedent phenomena, but the origin of the deformity has not been reached.

In a paper read before the Odontological Society in London in 1864, Mr. Cartwright says,—

"Want of space in the bones of the jaws may be defined as the true cause of irregularity in the position of the teeth in the majority of instances;" and follows this statement immediately with an inquiry as "to a satisfactory explanation of this want of capacity in the jaws of people of certain communities."

He further says,—

"Irregularity is uncommon among many, if not most, aboriginal peoples and tribes, and also the inhabitants of particular districts and locations. Take the aborigines generally, North American Indians, Africans, Caffres included, and Asiatics.

"Irregularity is common in most highly civilized communities, and especially so among the upper and middle classes, and it is more constant among the inhabitants of towns than it is among the inhabitants of agricultural districts."

Mr. Cartwright then offers the hypothesis that this abnormality is due to a process of breeding, and brings forward Mr. Darwin's statements that the bones and plumage of birds become altered by such a process.

He further supports his position by the results of high breeding among animals, which is maintained by constant and careful selection of such as possess particular points and characteristics.

For instance, he says, "Take the horse and the ox, and consider the points which make up a thoroughbred animal, the small head and ears, the thin legs, small fetlocks and feet, the necks and bodies finely and symmetrically proportioned, and then the narrowness and comparative smallness of the maxillæ. From the results obtained by high breeding in animals, they might reasonably argue that small jaws might be a characteristic of breed in certain conditions of life. If they compared two types of human beings, represented by the upper class in one case and in the other case by a large class of which the prize-fighter furnished an apt example, they would find as a rule in the first: well-shaped lips, a small oral orifice, high and capacious fore-head, well-pronounced chin, ears small and neck long; the ankles, wrists, feet and hands small; with an expression in which the intellectual predominated over the animal;" while the other class, represented by the prize-fighter, presented exactly the opposite characteristics.

The hypothesis of Mr. Cartwright is not without reason; and yet it is not altogether an explanation of the present phenomena, for the laws which govern selective breeding in animals do not apply to man in any condition in which he is now found. These principles would, without doubt, produce precisely similar results if applied under similar conditions.

Regard man as an animal only; dismiss all cognizance of his intellect and his affections; mate him to the woman with sole reference to the physical development of the race, and it would take but a few generations to see disease and deformity swept from the face of the earth. But to call the intermarriage of families, whose brains have been stimulated to their highest capacity and whose physical and nervous systems have been deranged by the habits of modern civilization,—to call such a mixture high, or "selective breeding," is a perversion of the term. If the application of these principles produce a delicacy of form in the whole physique, we should reasonably expect to find a corresponding delicacy and refinement in the condition of the dental organs.

That the process of selective breeding should tend to, or end in, deformity, is manifestly inconsistent with its prime object, which is the elimination of everything which tends to degeneracy or deformity.

The characteristics pointed out by Mr. Cartwright in his illustrations from animals are conspicuously æsthetic.

We can conceive of no such force acting uniformly upon the whole physique, and producing such æsthetic results without its influencing equally the dental organs, and thus there would be not only no irregularity or abnormality, enhanced beauty,—more symmetrically formed, more symmetrically arranged, and more symmetrically related dental organs. We are therefore irresistibly led to the rejection of the theory of "high or selective breeding," in its true signification, as exerting any direct influence upon the malposition of the permanent teeth, and while the facts noticed by Mr. Cartwright are in consonance with other observers, we are forced to the conclusion that such abnormalities are not a necessary result of a higher civilization and refinement, and that they are only coincident and correlated thereto.

There is a kind of breeding which does undoubtedly produce abnormalities of the kind under discussion. It is a manifestation not uncommon in this country of mixed nationalities, but it can hardly be called *high* or *selective* breeding. The laws of inheritance, confirmed by common observation, show how constant is the mingling in the offspring of the traits of character and the peculiar features of two diverse races brought together in marriage.

This mixing, without blending or harmonizing, is productive of deformity in character and deformity in physique. Thus, so far as the jaws and teeth are concerned, they may exist in each parent in perfect symmetry,—in one parent the jaws and teeth are large, in the other parent both jaws and teeth are small; but each in its way is a normal development. If, now (and for which we can give no reason) the small jaw of one parent and the large teeth of the other appear in the offspring, deformity is sure to follow; and in any efforts made thereafter towards correction, these facts must be taken into consideration.

In examining the maxillæ of a child between the ages of four and seven years, with the external walls removed, so as to expose the developing permanent teeth, we shall be struck with the advanced stages of growth which the crowns have attained, and with the crowded and jumbled condition in which they are placed. Of such an exhibition Professor McQuillen made the following remark:

"When examining a series of jaws of different ages, arranged so as to show deciduous and permanent teeth, it is not a matter of surprise that there should be irregularity in the permanent set; but, when observing their crowded and irregular arrangement in the jaw prior to eruption, it is rather a matter of astonishment that they should ever assume a regular and symmetrical appearance."

In our investigation we will observe that while there is no transposition of these crowns—each one maintaining its individual locality—they nevertheless stand in almost every variety of position. They will be seen deflected within or without the line, twisted, lapping, and sometimes completely overriding one another.

In the specimen now before us the lower permanent central incisors have recently erupted, showing the age to be about seven years. Their predecessors are the only ones of the deciduous set which have been removed. The general contiguity of the temporary teeth shows that but little enlargement of the dental arch had taken place, while the presence of the crowns of all the permanent teeth (the third molars excepted) is an ample illustration of the crowded confusion and disorder which has been described. In the upper jaw the left central incisor is partially twisted; both of the lateral incisors are within the arch, and, if continued on the same line, would shut within the lower jaw.

The crowns of the canines override and are in front of the laterals, and in contact with the central incisors save by a thin partition of process.

The first bicuspids on each side are in close contiguity with the laterals. The crowns of all the bicuspids are either twisted or tipped in such a way as to show that some new direction must be given to nearly every tooth, or irregularity of the most pronounced character must ensue.

The general condition of the lower teeth is not dissimilar to the upper ones, and this example is not an exceptional case.

These crowns, we shall also observe, are of their full diameter, and that they are placed upon a maxillæ which at this age has not developed sufficiently to allow them to range side by side upon a true dental line; hence, they must remain in this crowned and irregular condition until the maxillæ itself has grown large enough to allow the change.

It is now an established fact that the development of the teeth and processes and the development of the jaws are two distinct and independent operations.

The maxillæ will go on in their growth until they have reached the measure prescribed by the Creator, whether a tooth develops or not, and likewise the teeth will grow into undiminished crowns and erupt either in order or disorder, whether the maxillæ increase or remain stunted.

I examined a few years since the mouth of the celebrated dwarf, "Tom Thumb." I found the teeth those of a man in individual size; but the maxillæ in harmony with the rest of his osseous system, were dwarfed. The result was what we should naturally expect,—a most marked malposition of the teeth—so much so that he said he "had a double row of teeth all around." And this is uniformly the case with dwarfs where the whole physique is symmetrically dwarfed. The converse is also true of giants, except in those cases where the extraordinary stature is a characteristic of race.

To such an extent are these observations in accordance with both science and fact, that it is quite possible to judge of the nature of both these monstrosities, whether they be congenital, hereditary, or *lusus naturæ.* If, upon the examination of the fully-developed teeth of a giant, I found them large, regular, and in a well-formed arch, the whole in harmonious relation to his other enlarged features, I should have little hesitation in pronouncing him a congenital giant,—a large man by nature, and belonging to a family or race of giants. If, on the other hand, I found the teeth the size of those of a man of ordinary stature, and standing apart from each other in an enlarged jaw, I should pronounce him the result of forces which did not antedate his own existence, but continued their power long after the development of the teeth after their hereditary pattern had been completed. And in like manner a dwarf belonging to a race of small statüre would not necessarily show irregularity or crowding of the teeth, but would be expected to show a reduction in size of the dental organs in consonance and in harmony with the type of his race.

This is but a confirmation of the theory of the independence of these organizations; the evidence from a variety of sources going to show that the forces which preside over the growth of the osseous system are separate and distinct from those which originate and develop the dental organs and that while in a normal state both teeth and jaws would grow in harmony; in an abnormal condition the teeth might be far in advance of the growth of the jaws or they might be equally retarded.

If the former, they must erupt in a crowded condition; if the latter, they would, other things being equal, be likely to be in line.

In recognizing an antagonism, I cannot but be impressed with a similar contest going on, more or less frequently, between the mental and the physical development,—between the brain and the body. In the normal state of man these two systems are found working in harmony; in the present refined or degenerate state, each is fighting for supremacy, with the odds in favor of the brain.

No one of extended observation will hesitate in believing that there is a faculty or power at work, modifying materially the physique of the present generation, altogether inexplicable by the two commonly asserted influencing power of climate, hygiene, or diet. One of the most alarming characteristics of the present age and the present civilization is found in the rapidity of its movements and the activity of its mind; in the larger aggregate of highly-organized and excessively developed nervous systems, and in the increasing tendency to nervous and brain diseases.

As the peculiarities of progenitors in mind, temperament and physique, are by nature stamped upon their offspring, we see a generation of children inheriting a tendency to a nervous exaltation which very slight favoring circumstances encourages and stimulates. This is unquestionably more noticeable in the centers of luxury in this country than in any other portion of the civilized globe. Fathers who are under a mental strain to the very verge of insanity transmit that exaltation to their offspring. Children are no longer children, except in their immature physical development; and thus, if not in all instances an absolute intellectual precocity, we have relatively a mental and nervous development far in advance of the physical. Hence, if the mental is only up to the average of its years, we will find it associated with anything but a robust physique; and the contrast remains the same. I shall show that one of the manifestations of this precocious, highly-organized, and exquisitely-developed nervous system is its influence upon the development of the teeth, while the physical system is following in tardy but vain efforts to keep pace with it.

My proposition then is this: laying aside all cases that may be due to an inherited tendency to follow or exaggerate some given type, together with those which are manifestly due to forces operating only after eruption; the primary cause, so far as the individual is concerned, of any general disturbance in the development of the permanent teeth, showing itself particularly in their malposition, is directly traceable to a lesion or innervation of the trigeminal nerve; that it is an interference, more or less prolonged, with one of the prominent functions of that nerve, and operating at its origin; that while I know of no way to prove this assumption by any examination, microscopical or otherwise while the nerve-center is under this influence, it is nevertheless sufficiently proven by secondary phenomena which could only have originated from such a source.

The function of the trigeminus thus stimulated or interrupted is that which supports, regulates, and governs the nutrition of the tissues to which its terminal branches are distributed.

That such a lesion or innervation would be likely to produce such result, is clearly foreshadowed in the following statement made by the late Professor Anstie in one of his lectures on the fifth nerve, as follows:

"The nervous center in which the trigeminus is implanted is, of all nervous centers, the one which, in the human subject, is most liable to congenital imperfection of the kind which necessitates a break-down in its governing functions at special crises in the development of the organism."

TO BE CONTINUED.

ARTICLE II.

Memoir of Dr. George Sidney Jones.

BY W. H. MORGAN, M. D., D. D. S.

Dr. George Sidney Jones was born in Cumberland County, Va May 27th, 1808, was reared in Buckingham County, Va., learned the cabinet making business in Lynchburg. In 1835, he moved to Addairville, Logan County, Ky., where he opened a cabinet maker's shop.

In 1847, he commenced the study of Dentistry, and in 1850 closed his shop, and from this forward he gave his entire time and energies to his new calling. He graduated from the Baltimore College of Dental Surgery in 1851, and soon thereafter located in Russellville, Ky., where he continued to practice with great success until the beginning of his last illness, which terminated in death April 25th, 1875. Dr. Jones was one of nature's nobleman, warm hearted, generous and frank, his ear was ever open to the poor, helpless or distressed, and his hand ready to supply their wants so far as his ability would permit. No man in his sphere and with like pecuniary ability, within the knowledge of the writer did more to gladden the widow's heart or dry the orphan's tears than he. He was especially the friend of young men, taking great pleasure in instructing and advising them, encouraging them by his oft repeated motto—"Qualify yourselves for usefulness and the world will use you." He belonged to the Mystic Order of F. & A. Masons, was given to charity and the practice of every virtue.

As a dentist, Dr. J. was eminently conservative, safe and skillful. No man in the professson had a higher appreciation of its dignity or sought more earnestly to promote its interests than he. He labored to elevate it in the estimation of his fellow men. He was present at the organization of the American Dental Association in 1860, and was the ardent friend of dental associations and dental colleges always frowning upon everything that smacked of quackery.

In 1850, he joined the Reformed or Christian Church, and from that evinced his love for his Heavenly Father by an upright walk and godly conversation, on all suitable occasions recommending and enforcing the truths of the Holy Bible as man's only hope for eternal salvation.

His last hours were calm and peaceful. With christian resignation he said, "not my will, but Thine be done." Such a triumph in death is only vouched safe to the Christian. "Let me die the death of the righteous, and let my last end be like His."

In Dr. J's death the dental profession has lost one who dignified his calling; the Masonic fraternity one who squared his life by the principles of the order; and the church a zealous member.

ARTICLE III.

Georgia State Dental Society.

The seventh annual meeting of this society was held in Atlanta, Monday, May 10th, adjourning May 13th. The President, Dr. Patterson, of Waynesboro', Ga., presiding.

The meeting was well attended, and gave evidence of much progress in the profession in Georgia. A flattering number of new members were added to the roll. The following reports were read by gentlemen composing the various committees:

Chemistry and Therapeutics.—Dr. E. Parsons, Savannah, Ga.

Histology and Physiology.—Dr. Charles C. Allen, Marietta, Ga.

Operative Dentistry.—Dr. A. C. Ford, Atlanta, and Dr. M. S. Jobson, Perry, Ga.

Mechanical Dentistry.—Dr. S. G. Holland, Atlanta, Ga.

Dental Education.—Dr. John H. Coyle, Thomasville, Ga

The address of the president, Dr. George Patterson, of Waynesboro', was an able and scientific production, well worthy of the applause it called forth. This address was ordered printed for the use of the members.

Dr. M. S. Jobson read a paper containing statistics of nerve-capping in his practice. It was a valuable addition to the archives of the society. Bearing upon the same subject was a very instructive essay by Dr. W. C. Wardlaw, of Augusta, advocating the use of the ordinary pattern plate gutta-percha dissolved in chloroform as a capping for exposed or aching pulps. Other essays were read by members of the society, and many valuable ideas presented.

Suitable resolutions were read and spread upon the minutes in regard to the death of Dr. J. A. Fuqua, of Atlanta, an esteemed and honored member of the Georgia State Dental Society.

One step taken, indicating a healthy ambition, was a resolution to make arrrangements for the purchase of a microscope for the use of the society.

On motion of Dr. E. Parsons, the president appointed a historian to collect all items of interest pertaining to the history of the society from its origin to the present time; to arrange in suitable form for publication the transactions, essays, debates, etc., and to report upon the same at the next meeting of the society.

The annual election resulted in the following list of officers to serve the society during the following year:

President.—Dr. George W. McElhany, West Point, Ga.

First Vice-President.—Dr. M. S. Jobson, Perry, Ga.

Second Vice-President.—Dr. John H. Coyle, Thomasville, Ga.

Corresponding Secretary.—Dr. Charles C. Allen, Marietta Ga.

Recording Secretary.—Dr. D. Smith, Atlanta, Ga.

Executive Committee.—Dr. E. Parsons, Savannah; Dr. W. C. Wardlaw, Augusta; Dr. A. C Ford, Atlanta; Dr. W. F. Tigner, Columbus; Dr. John H. Coyle, Thomasville.

STANDING COMMITTEES.

Histology and Physiology.—Dr. George Patterson, Waynesboro', Ga; Dr. E. Parsons, Savannah,

Pathology and Surgery.—Dr. A. C. Ford, Atlanta; Dr. R. A. McDonald, Griffin.

Chemistry and Therapeutics.—Dr. J. D. McKellar, Macon; Dr. S. G. Holland, Atlanta.

Operative Dentistry.—Dr. S. G. Robertson, Cuthbert; Dr. W. C. Wardlaw, Augusta.

Mechanical Dentistry.—Dr. W. F. Tigner, Columbus; Dr. R. B. Adair, Gainesville.

Dental Education and Literature.—Dr. E. M. Allen, Marietta; Dr. H. A. Lowrance, Athens.

Clinical Operators.—Dr. L. D. Carpenter, Atlanta; Dr. James Hart, Hawkinsville.

Historian.—Dr. Charles C. Allen, Marietta.

Committee on Instruments, Appliances, etc.—Dr. L. D. Carpenter, Atlanta; Dr. S. G. Holland, Atlanta; Dr. J. P. Holmes, Macon.

Committee on Microscope.—Dr. A. C. Ford, and Dr. Samuel Hape, Atlanta.

Committee on Arrangements.— Dr. Samuel Hape and Dr. William Crenshaw, Atlanta.

Delegates to American Dental Association.—Dr. H. A Lowrance, Athens, Ga.; Dr. A. C. Ford, Atlanta, Ga.; Dr. J. H. Coyle, Thomasville, Ga.; Dr. M. S. Jobson, Perry, Ga.; Dr. Charles C. Allen, Marietta, Ga.

Delegates to Southern Dental Association.—Dr. E. M. Allen, Marietta, Ga.; Dr. J. P. Holmes, Macon, Ga.; Dr. W. F. Tigner, Columbus, Ga.; Dr. R. B. Adair, Gainesville, Ga.

Adjourned until the second Tuesday in May, 1876.

CHARLES C. ALLEN, D. D. S., *Cor. Secretary.*

American Academy of Dental Science.

The eighth annual meeting of the American Academy of Dental Science, will be held in Boston, on Monday, September 27th next, at 10 o'clock A. M.

The annual address will be delivered by Dr. Robert Arthur, of Baltimore. Essays will be read by other distinguished members of the profession.

E. N. HARRIS, D. D. S., *Cor. Secretary,*
579 *Tremont St., Boston.*

SELECTED ARTICLES.

ARTICLE IV.

Treatment of Deciduous Teeth.

BY HENRY S. CHASE.

There is nothing more worthy of attention, at the present time, by the dental profession, than the subject of *the Preservation of the Deciduous Teeth.*

That we should go to the *source* of the trouble, and try to understand the remote causes of cecay in these temporary organs, and thereby endeavor to institue measures for prevention of dental caries, hardly any one will deny. As I have already on other occasions written lengthy papers on this subject, one of which was read at the American Dental Association in Boston, in 1866, and which I intend to reproduce in this JOURNAL soon, I will pass this portion of the subject and proceed to make some observations on the subject at the head of this article.

And in the first place it seems necessary that I should say something in regard to its importance, for until it is conceded important by dentists themselves, it will grow into importance very slowly in the minds of fathers and mothers. It certainly is true that the public has been educated up to the present point, in dental matters, by dental practitioners themselves. And on this particular subject a great deal of preaching is still necessary. For while a large number of families among the well-to-do of our cities have their children's temporary teeth attended to, the great mass, consisting of nineteen-twentieths, regard it as of no consequence. And the result is a very great deal of dental pain endured by children, and a great loss of sleep and waste of sympathy by parents. I wish that every parent was obliged by natural law to suffer all the pain endured by children, resulting from decay of their deciduous teeth. I think it would only be just. It is the parents' duty to give by inheritance good, sound dentos to their children, and it is a further duty that they enforce such hygienic and remedial measures as will preserve them until nature calls for their removal.

These deciduous teeth are necessary for the health of the child. Food not well masticated is imperfectly digested, resulting in many of the ailments of childhood, including not only "bowel troubles," but many diseases resulting from want of proper nutrition, such as nervous disorders, rachitis, imbecility and starvation of the dental tissues

Not only is this the case, but the ill effects of pain on the whole organism, together with the inflammation of the parts contiguous to dental disease, frequently produce the most disastrous consequences.

That the presence of healthy deciduous teeth in the jaws until the natural development of the permanent set, is necessary for the natural evolution of the jaws and teeth, I have no doubt. That deciduous teeth may be extracted before time, and yet a good development of these organs take place in many instances, I also believe. But on the other hand, I can see an arrest of development produced by premature extraction.

The growth of the jaws takes place in several different ways, in order to give room for the permanent teeth. *One* of its modes of growth is by a movement of the temporary crown bodily forward toward the buccal or lingual surface. Not until the roots of the deciduous teeth have been more or less resorbed can this take place ; then the alveolar wall above the crown of the deciduous tooth is wholly or partially resorbed, and the permanent crowns moves toward the buccal or ligual surface, pushing the gum before it also. When the tooth has attained the desired position, the alveolar wall is again formed under the gum, and thus an increase of transverse and antero-posterior diameter of the arch takes place.

The other modes by which this result has been attained need not at this time be discussed. Every dentist of many years experience and observation must have often noticed permanent teeth coming through the gum above the crowns of the temporary, showing, not the cutting edge or grinding border first, but the broad buccal or lingual face. When the temporary tooth is absent for a considerable period before the eruption of the permanent substitute, I have never seen the latter take the position described, but on the contrary, it shows its *edge* first, and then in the line representing the smaller arch.

This tendency of the permanent teeth, under the condition of premature extraction of the deciduous ones, may be taken advantage of in those cases when there is *too much* fullness of the dental arch, and especially of its anterior portion.

And now that, I think, I have given sufficient reasons for the preservation of these deciduous teeth, let us find out the best way to do it. I shall give the results of *my own experience*, and *others have the same privilege in this Journal.*

Twenty years ago I commenced the practice of endeavoring to impress on the minds of parents the importance of this subject. Children three years old and upwards, used to be brought to have teeth extracted on account of toothache. I began to save them instead of extracting. I soon found that it was a matter that must be studied. In the first place I must get the confidence of tee little ones, avoiding a movement which would give it pain. I must never deceive them. I must not fatigue them. To do this I found much patience was required. I found that it was not a desirable practice to have, so far as money and comfort were concerned. Nothing but a sense of duty and sympathy for the parties urged me on. I met with more difficulties then than now, and I do not intend to fatigue my reader with the process of evolution, but tell them what my *present* practice is, being as it is. the result of my many mistakes and successes by diverse methods.

In the first place, what deciduous teeth do I not try to save, but on the contrary extract?

I extract all deed roots, whether with or without crowns. Now right here, let me repeat what I have thousands of times before said. A tooth is not necessarily dead because its pulp is dead. On the contrary, a tooth with a dead pulp almost always has a living pericementum, for a long time after the death of the former. I extract all teeth having pericementitis, which I think I cannot easily cure. It is bad practice to allow roots which are causing inflammation to remain contiguous to undeveloped teeth. If a child comes to me for the first time with teeth that need extracting, and also those which need plugging, I perform the latter operation first, if possible, so as to produce a less unpleasant impression than by a different procedure. When we once get the confidence of the child by having performed *painless operations*, then it will not be destroyed by a painful one, if we do not *deceive* the child. When the latter asks me "will it hurt?" I always tell it just what I honestly believe. It cannot be too thoroughly impressed on the minds of parents, that children ought to be brought to have their teeth filled *before they have ached.*

If a child is brought to me at four years of age for consultation, and ever after that as often as I may designate, that child need never have the toothache, or the parents wakeful nights on that account. This as a rule. There are children whom I cannot manage, but they are few, if the parents will not *meddle.*

Painless operations must be performed. Fatigue of the child must be also avoided. Give it short sittings, say from fifteen minutes to half an hour, according to age and endurance. Even a quarter of an hour may be too long. What time is lost in brevity must be made up by freqeency. I cannot insist too much on these things. Parents will urge longer sittings, because it is trouble to themselves, but be firm and look only to the success of your treatment. When these fundamental principles are well *felt* by the dentist, his practice with the children will glide into natural channels, without too much particularizing on my part.

I find that operations performed on children's teeth, are not as successful as a rule, as upon those of adults. One reason is the necessarily imperfect manipulations in many cases. The very fact that pain must be avoided makes it so. On the other hand, deciduous teeth are full of vitality, of motion; the microscopical organs composing them are active; if a plug is not in harmony with its walls, resorption may take place and the pulp become irritated or *exposed.* It is well to remove superficial decay when possible; especially on proximate surfaces the teeth should be cut away freely, and always so as to be as self-cleansing as possible. This is still more important when one proximate surface is a sixth year molar or bicuspid; the deciduous tooth should be far removed. When plugs are placed on proximate surfaces the same separations should be maintained, for plugs and teeth will last much longer than if the natural shape of the teeth is maintained, or a *narrow* space left between the teeth. Some grinding surface must be sacrificed for the greater good of durability. Separations are easier performed for children with Arthur's thin chisels, than with the file or corundum wheel. Experience with each individual child will decide this.

In some cases alveolar abscess may be cured for children, not by the heroic treatment of adults, but by merely cleansing the cavity of decay ond pulp cavity as thoroughly as possible, using alcohol as a disinfectant. Filling the roots must not be insisted on, and attempts in this direction carried only so far as circumstances may dictate. The roots may be half absorbed in their length when the tooth is treated, or even cut half way off near the neck by the same process. When not more than a year will probably elapse before the teeth of replacement will appear, an ulcerated tooth had better be extracted.

The pulp, when exposed, may be destroyed in the usual manner, and its extirpation postponed for twelve days, in order to avoid pain, and even longer if necessary. No attempt should be made to *dive* into the root canals for the vessels; saturate them well with alcohol and cover them up. The rubber dam must often be dispensed with, and pieces of spunk cut into large or small squares to absorb moisture must be freely used.

The pulp chamber in deciduous teeth is very large, often occupying a large portion of the crown *above the neck*, with horns running towards each cusp. Great care must be used not to wound this pulp or its horns in excavating, for they are exposed in very many small crown cavities, and especially is this the case when the resorptive process has commenced. When freshly exposed, or not having had many inflammations, efforts should be made to preserve it alive. To do this ox. chlo. zinc must not come in contact with the pulp or with dentine. Ox. chlo. zinc is not in harmony with the delicate tissues of deciduous teeth.

Gutta-percha varnish, (chloroform and gutta-percha in thick solution) that will drop from an instrument, should always be used for an exposed pulp, it will quiet the pain and keep the air from the pulp; drying as it does, rapidly, the plug can be introduced immediately, either of ox. chlo. zinc or metallic paste. For a temporary filling the former may be used, as it hardens rapidly, and can be introduced with little pressure. But it is much better to *fill the cavity but once.* It will suit parent and child much better than another operation. The thorough removal of decay must not be insisted on when accompanied with pain. Its removal is desirable and should be done when it will not prevent the accomplishment of our object, but "a half loaf is better than no bread," and therefore there may be cases when but little of the decay can be removed. Saturation of the carious bone with alcohol will render it less liable to decay, and if the margins of the cavity are cut away until sound and healthy dentors is reached, decay will proceed very slowly under a water-tight plug. The metallic paste should be the best amalgam that can be procured. I have found "Fletcher's Gold and Platinum Alloy" to be the most reliable. It neither shrinks or discolors, and hardens readily enough, and bears mastication well. I have tried this by the "glass tube test" many times, and never found leakage. Sometimes it must be used very plastic, at other times more friable; but it must be packed soon after mixing. Every cavity in which this paste is used should be *varnished.* This coating has less conducting power than the metals, and seems to be more in harmony with deciduous dentos. The patient should return in a day or two for examination. The plugs may have been partially displaced by mastication, notwithstanding your directions that the tooth should not be used, in eating, for four hours. At this time it should also be polished, if necessary. I never had but one such plug spoiled by a patient.—*Missouri Dental Journal.*

ARTICLE V.

Food for Infants During Dentition.

BY DR. B. F. DAWSON.

There is a prevailing opinion that the child requires a much more substantial food when the teeth begin to appear, and also that the existence of a diarrhœa of greater or less severity, during this period, is a thing to be expected; consequently, when the child suffers from any gastro-intestinal trouble while the teeth are cutting, it is altogether dependent upon that process. The doctor expressed his conviction that faulty alimentation is the chief cause in the production of the gastro-intestinal troubles met with during this period, and that if the child requires a more substantial diet, it should be only such as contains milk as its chief base.

The paper was listened to with great attention, and the author concluded by saying that not all gastro-intestinal diseases could be avoided with the most assiduous care and attention to the diet of children; but that, as a result of his experience, he believed a great majority of these cases are due to improper alimentation, both as regards the quantity and quality of the food administered.

Dr. Joel Foster remarked that he regarded the paper of the evening as plain and practical. He had been particularly interested with regard to the question of over-feeding infants, and believed that almost as much mischief can be done in this way as by under-feeding. He was also convinced of the very great necessity of the mother nursing the child during the earlier period of its life, for she alone can furnish the real natural food for it.

With regard to artificial food, it was a subject in which he was particularly interested as being connected with the New York Infant Asylum. In that institution it is impossible in many cases to get natural food, and they are obliged to use some substitute, and the substitute which can best be made is cow's milk. The method of preparing it which he had followed was to allow the milk to stand until the cream begins to rise, and then take the upper portion and dilute it with barley-water. He was then particular that the food should be given at regular intervals, and it should always be so given at a temperature near that of the human body, for if given below that degree it is very likely to produce gastro-intestinal troubles, which destroy so many children. It had been found that milk taken directly from the cow and given to the children did not do nearly as well as when permitted to stand for about two hours, when a partial separation of the cream has taken place, and then taking the upper portion of the milk. In this way more fat and less casein is obtained.

Dr. Porter held that perhaps hot weather and other influences had very much to do with producing this class of diseases as well as improper alimentation.

Dr. Messinger urged the propriety of thoroughly cooking whatever article was used for diluting the milk, and he always insisted that the barley-water should be boiled for three or four hours.

Dr. Garrish objected to keeping the milk upon which the child is to be fed in the ordinary ice-box which contains meats, vegetables, etc. A convenient refrigerator can be made of a common stone crock, by placing a piece of ice wrapped in flannel in the bottom of it, and there the milk can be kept with the greatest ease.

Dr. McIlvaine regarded dilution of cow's milk as improper. He believed that the parotid glands secrete from the earliest period of life, and looked with a great degree of caution upon the statements made concerning experiments said to prove to the contrary.

Dr. Roberts referred to one point which had not been spoken of with regard to cow's milk, and that was that it is generally acid, while mother's milk will usually be found to be alkaline. He did not think that cow's milk is the best substitute that can be used for breast milk.

Dr. Hanks spoke with reference to the fact that among that class of people where gastro-intestinal diseases prevail most extensively, the children are poorly cared for as well as ill fed, and that it is a very common thing to find them overburthened with clothing during the hot weather.

Dr. Lewis Smith remarked, with reference to the use of farinaceous food, that up to the third month the salivary glands and pancreas are present only in a rudimentary state consequently that fluid which is afforded by the animal economy for the digestion of starchy material is absent, but it is also probably true that the starch is not so irritating as is casein undigested. He has been accustomed to use the upper portion of the milk after it has stood for a short time, and prefers to use some article for dilution in which the starch has been changed into dextrine or glucose, and recommends Liebig's food. He does not think that sugar should be added at all during warm weather when diarrhœa is present. If there is constipation he gives sugar, and sugar of milk is the best form in which it can be employed. He was of the decided opinion that many deaths occur among children from the fact that the mother regards eight, ten or twelve stools every day as necessary while the child is teething. This widespread error should, if possible, be corrected.

Dr. Robinson suggested that the weight of the child might determine whether it was receiving sufficient food or not. Decrease in weight might be due to other causes, but a careful observation would enable us to determine whether the decrease was due to insufficient supply of food or not. —*N. Y. Medical Library and Journal Association, in Medical Record.*

ARTICLE VI.

A New "Motor."

The alleged discovery of a new motor by a Mr. Keely, of Philadelphia, has been exciting the curiosity of scientific and unscientific men for some time past. There are those who consider it not so much a new motor as a chimera, which is an assumption formerly arrived at in regard to steam, the electric telegraph, and ocean navigation, before they were established by actual experiment. There are others who insist that it is the greatest discoveery of the age, and is going to revolutionize the forces now employed in industrial progress. It is unnecessary to say that just as sanguine expectations have been expressed before of the results of inventions which have utterly failed to realize the predictions of their patrons.

Mr. Keely, we are told, however, is about to demonstrate the entire practicability of his discovery in its application to a railroad train between Camden and Jersey City. Any expression of judgment, either for or against, until we have this practical demonstration must be premature. The public can afford to wait till Mr. Keely submits his case to actual experiment.

It is difficult to convey an intelligent conception of what the alleged new discovery is. The motive principle is represented by the New York Daily Bulletin "to be the expansive power of carbonic acid. This important compound under a pressure of thirty-six atmospheres at the temperature of thirty-two becomes liquid; and when the pressure which retains it in the liquid state is renewed the rapidity of the evaporation, and the enormous expansion of the vapor, are such as to produce a degree of cold under which acid solidifies, forming a white concrete substance possessed of very extraordinary properties. Prof. Faraday was the first who liquified carbonic acid, but it was first treated as solid by W. Thilenrier. At common temperature and pressure water absorbs its own volume of carbonic acid; under a pressure of two atmospheres it dissolves twice its volume, and so on." An intelligent correspondent of the Savannah News, who claims to have made numerous and expensive experiments with it, has no doubt of its immense power as a mechanical agent, in proof of which he adduces the following progressive augmentation of its expansive properties by increased temperatures:

At 5 degrees Fahrenheit the pressure in pounds per square inch is 372; at 10 degrees Fahrenheit the pressure in pounds per square inch is 403; at 20 degrees Fahrenheit the pressure in pounds per square inch is 460; at 30 degrees Fahrenheit the pressure in pounds per square inch is 560; at 40 degrees Fahrenheit the pressure in pounds per square inch is 697; at 45 degrees Fahrenheit the pressure in pounds per square inch is 1,080.

Heretofore the great scientific difficulty has been to know how to utilize this wonderfully expansive power—to put the harness on it, so to speak, and to work it, as Professor Morse has harnessed electricity, and compelled it to carry messages. Now, Mr. Keely claims, this difficulty has at length been conquered, and people who profess to have patiently examined his plans, and listened to the description of his generator, multiplier, receiver, pipes, etc., are confident he will succeed. The advantages claimed for it over steam and the steam engine are many, not the least of which are economy, safety and easy control. If applied to navigation, the propelling power, it is said, would not cost more than five dollars to run a steamer from Savannah to New York; and as the necessary machinery will not take up one-fourth part of the weight and room of a boiler, engine and fuel, of equal power, another advantage would be additional carrying capacity and space for freight.

If Mr. Keely should be able to demonstrate all that he promises, the mills and manufactories and the commercial and social progress of the world would receive a new impetus. Even steam and electricity have failed to satisfy the impatient temper and the industrial demands of men, and if there are any other forces in nature which can be availed of, they will be largely pressed into service. But what is to be the lessened value of all our coal fields, if this new motor has all the virtues claimed for it?—*Baltimore Sun.*

ARTICLE VII.

The Dental Profession in France.

BY MORDAUNT STEVENS, M. R. C. S. E., L. D. S., D. D. S., &C.

Two months ago at the request of some of our readers we announced that in all probability a meeting of dentists would take place in Paris towards the end of this month to discuss the clauses of a new law to regulate the practice of dentistry in France. We made this announcement under protest, assuring the gentlemen who had come to Paris to discuss this matter with us, that, to say the least, such a notion was premature, but our confreres, more sanguine even than ourselves argued that surely in Paris (a city in which dentists postively swarm,) a certain number of practitioners could be found ready to take the initiative, and to meet to consider what had best be done for the general good of the profession. The event has proved, alas, that they were premature in their anticipations, and that we were unfortunately right. Our provincial readers cannot form an idea of the difficulty there is in bringing about this long talked of dental congress; there are so many small coteries and cliques, so much petty jealousy, rivalry, and competition, in fact, such a total absence of *esprit de corps* and true professional feeling, that the task of bringing so many strange sheep into one fold may fairly be looked upon as well nigh hopeless for the present. On the one side we have the doctors of medicine, graduates of French universities; these gentlemen, looking upon dentistry as a branch of surgery, consider, with justice, that none but qualified medical men have the right of practising the speciality. The law is against them it is true, they submit, but they look upon old dentists practising *sine* diplmoa, and upon all foreigners, as interlopers, in fact as so many poaches intruding on their estate. On the other side we have dentists who have duly served their apprenticeship and are thoroughly competent in the more mechanical departments of the profession; they look on the question in quite another light. "While the doctors," say they, "were studying anatomy and surgery, we were toiling in the workroom, and acquiring a more practical knowledge of our profession, and we consider that we ought in no way to be eclipsed by our more scientific brethren." The foreign dentists claim that they have raised dentistry in France to the position it now occupies; they are perhaps a little proud of the special training they have received in English or American dental colleges, and appear not to be so willing to hold out the hand of good-fellowship to those who have been brought up under the old system as they ought to be. We must not forget the charlatans; they reap a golden harvest from the present state of things, and naturally will do all in their power to prevent any legislative reform.

Our worthy "confreres" do not disagree merely on what may be called public questions, private dissensions exist between them, and it is hard indeed to find two dentists who are on speaking terms with one another. We are now talking of the respectable portion of the craft, but even the charlatans are divided amongst themselves; these worthies, the very pariahs of our profession, will not even herd together; they hate their equals even more than they hate their superiors. We hope our readers will not accuse us of exaggerating the state of affairs. We have considered the question calmly and we trust dispassionately. Here in the metropolis which boasts of ruling the universe on all questions appertaining to science and art; in the town where almost every door is adorned with the brass plate of one of our craft, in a city which has been called a hive of dentists, we cannot find twenty amongst the many good men and true who practice here, ready to forget private squabbles and do something for the general good. No! Some are indifferent, others looking upon themselves as *the only bright shining lights*, will not associate with their fellows; others again, have some grievance against one or more of their brethren and will not join any society for fear of having to meet those who have incurred their displeasure. The story of the mote and the beam over again; they forget that some of their own bitter sayings against their neighbors may have been reported and magnified. Here let us stop; we have purposely avoided discussing the numerous letters we have received on the subject of the congress; as we do not care to enter, unless it be forced upon us, into a paper warfare. We have depicted the state of the profession in France as it is at present; it is not our fault if the picture be not attractive.—*London Review of Dental Surgery.*

ARTICLE VIII.

An Easy Method of Removing a Part of the Inferior Dental Nerve within the Lower Jaws.

BY JOHN T. HOGDEN, M. D.

In July, 1874, Mr. B., aged sixty two, of robust constitution, having had uniform good health, presenting himself, complaining of intense paroxysmal attacks of neuralgia. The site of pains was the gums, teeth and bone of the right inferior maxilla.

With a strong knife I made a cut one inch long, beginning on the inner side of the base of projecting ridge of the coronoid process, and running forward on the body of the bone to about the former site of the last molar tooth.

The point of the drill of a burring engine was entered just in front of the base of the coronoid process, and directed downward, backward and a little outward; in a few seconds the drill had penetrated the canal, as was known by the absence of resistance, the sudden twinge of pain and the flow of blood.

The small drill was then replaced by a globular burr one-eighth of an inch in diameter, with this the opening was enlarged until the nerve was again touched; the burr was now carried outward and inward, and then toward the posterior dental foramen; this last gave intense pain. Now the burr could be made to touch every part of the wall of the space without pain; the blood flowed pretty freely when the canal was first opened, and was still flowing—a little cotton pressed into the opening in the bone, the bleeding at once ceased, and we left the patient comfortable and happy.

For several days he suffered from nothing but soreness at the point of operation; two weeks later he called at my office, suffering a little with the old pain; this however, disappeared entirely, so that on the 21st of November, when we called on him to learn the finale, he was quite well and had much improved in flesh.—*London Monthly Review.*

EDITORIAL, ETC.

Summer Sessions.—For a number of years past a spring and summer course of instruction has been carried on at the Baltimore College of Dental Surgery. Until the present course the students in attendance have been under the charge of a Demonstrator, and the instruction confined to practice only.

The present session, however, is held under the supervision of Prof. James B. Hodgkin, Professor of Dental Mechanism and Metallurgy, and is attended by quite a number of matriculants who purpose attending also the regular sessions of the College. The benefits of such a preliminary course of instruction cannot be over-estimated, and its results will be of inestimable value to students, who after availing themselves of such an opportunity will be the better enabled to commence the winter course of study and practice.

The attention of those who desire to commence the study of a profession, without any previous experience, or at least possessing only what may be obtained in a private office, which at best is in most cases limited, is called to the many advantages to be derived from such a spring and summer course of preliminary instruction.

No private office can present the same facilities for practice, etc., to the dental student, and such a course of study and practice will supply a want long felt by many in their endeavors to perfect themselves in their chosen profession.

A Sad Occurrence.—The Murder of Two Dentists.—The following sad occurrence is described by a Cynthiana, Ky., correspondent, and is an evidence of what the utterance of a single word may lead to:

Dr. E. J. Peckover and Dr. C. L. Donnally were partners in the practice of dentistry in Cynthiana. Dr. Peckover's father a practising dentist at Paris, Ky., was also associated in some way with the firm. This threefold partnership was dissolved a month or two ago, and the settlements did not progress to the mutual content of the two younger members of the firm, and there was ill-feeling. On Wednesday, it is said, the two gentlemen, in a talk about the settlement, had a dispute over an account for $10 against a customer of the late firm. Donnally accused Peckover of cheating him. Peckover in reply to this assertion, denounced him as a liar. Dr. Donnally turned away with the remark that they would have no difficulty. Both of these gentlemen were men of sobriety and good standing in our community.

Meantime Donnally brooded over the wrong, and to a friend who was trying to dissuade him from taking any further notice of the insult, he said, in substance: "I have been thinking the thing over, and the more I think of it the more provoked I get." Thursday evening about 5.30 o'clock, Donnally stepped out of his office, with a four-inch Smith & Wesson pistol, and finding Peckover on the street, who had just emerged from his own office, which is adjoining that of Dr. Donnally, called to him. He turned around, and as he did so Donnally said: "You called me a liar yesterday," and the words had hardly fallen from his lips when he fired his pistol, the ball passing almost through Peckover, near the region of the heart. He got up and walked into a jewelry establishment, and said that " Charley Donnally had shot him," and died in about twenty minutes. Mr. James T. Hedges, a dry goods merchant, just opposite, stepped over and caught Donnally by the right shoulder and arm as he was in the act of shooting the second time, and told him he had killed Peckover, and should not shoot again. Constable Ewalt then came up and arrested Donnally. " My God doctor, what did you do that for?" exclaimed the officer. " I am as sorry for it as anybody," answered the prisoner. " Where do you want me to go? "

Deputy Marshal Hoffman joining the two, the whole party proceeded to the courthouse building and into the office of County Judge Lucius Desha, Jr. Judge Desha sat facing the only door and across the table from it, pouring over the statute law relating to the case in hand. Hoffman sat with his face at right angles to the door and near it, with his feet on the table. Ewalt was reared back in a chair close to the only window, his right side face to that window and his back to the door. Donnally sat reared back in his chair, his left face to the window.

R. H. Ridgeley, a brother-in-law of Peckover, was at the latter's house, his own home, when the news came of his kinsman's fate. He had been out only a few moments before, but was not well and returned to the house. What he did in the twenty minutes or so intervening between the death of Peckover and the shooting of Donnally can only be conjectured from the result. He got a pistol, a full sized Colt's army revolver. It is certain too that he said he was going to kill Donnally, but one young man to whom he said it thought it only an idle threat ; and another gentleman with whom he talked on the subject left him believing or hoping that he had been dissuaded from his bloody design. He entered the court house yard by the gate, nearly opposite to, and a considerable distance from, the windows at which Ewalt and Donnally sat, passed by the window, around the corner of the house, and in at the door. The doomed man sat as described above, and the constable says his eyes were cast down, his feet on the front rounds of his chair. Hoffman saw Ridgely enter, pistol presented, and almost as quick as thought had his feet down from the table to the floor, himself on his feet, and his hand on Ridgeley's right arm. Neither Judge Desha nor Ewalt saw Ridgely enter, nor, probably did Donnally. Hoffman was too late. He thinks his striking Ridgely's arm lowered the course of the ball, and his idea agrees with the probability that the aim was at the head or the heart. Ridgley advanced about three or four feet into the room toward Donnally, and when four or five feet distant from him fired, saying as he fired, "Blood for blood." Some statements represent him as saying also, "I didn't do you as you did him. I came up to your face," and "I could have shot you through the window." He was seized, disarmed, and after a little delay, lodged in jail.

Donnally fell over from his chair to the floor, cried out in agony "My God," asked Judge Desha to tell his brother to take care of his effects and attend to everything; the death pallor overspread his face, and he expired in a few minutes. His body was removed to his office room.

Coroner Whitaker held an inquest on the two bodies and simple verdict of death from pistol shots in the hands of C. L. Donnally and R. H. Ridgeley, respectively, rendered.

Dr. Peckover was about thirty-eight years old, weighing probably one hundred and sixty-five pounds, rather heavy-set and in excellent health. He was in the quartermaster's office in Nicholasville, Ky., during the war; afterwards lived in Louisville a year or two and established himself as a dentist in Cynthiana some eight or nine years ago. He married a daughter of R. H. Ridgeley, in Nicholasville.

Dr. Donnally was a Virginian, had been in Cynthiana for several years, and acquired the repute of a genial gentleman as well as a highly skilled practitioner of his profession. He leaves no family, never having been married. He was about forty-two years old, rather taller than Peckover, and about the same weight.

Ridgley is a young man, bearing a blameless reputation, and is described as a rare exception to the generality of young men. His attachment to his father and brother-in-law was very tender, and these circumstances, with the feeling that Donnally was utterly wrong in his attack on Peckover, and profound sympathy for Peckover's family, make it entirely certain that the current of opinion in his favor will make his conviction impossible.

MONTHLY SUMMARY.

Billroth on the Repair of Tissues.—The following statements are given by Billroth as embodying the most recent views on the reparative process:

When repair commences in muscular tissue that has been injured or inflamed, with accompanying loss of substance, the space will be filled by wandering cells; the broken ends of the muscular fibres will grow out a longer or shorter distance, ending in one or more minute points. Coincidently, many nuclei appear in the growing end of the fibre; whether these come from the old nucleus or are new formations is uncertain. It also appears as if there were a complete new formation of young muscle-fibres between the old ones. So far as we know, it is uncertain where the cells originate that produce these intercalated growths.

In each injured nerve-fibre, whether at the periphery or at the centre, the axis cylinder, and subsequently the medullary sheath, degenerate for a certain distance, while the whole neighborhood is filled with wandering cells. Then the axis cylinder grows forward inside the nerve-sheath, generally under the form of one or more cords.

The growing cords meet and may unite with one another. The axis cylinder of the nerves is to be regarded as a long, protoplasmic process of a ganglion cell; if it be a cut in any place, it grows again simply by a lengthening or protusion of its substance. When the nerve fibres in the tadpole's tail bud out, the future nuclei of the nerve-sheaths form spontaneously in the nerve-bud, without any participation of the existing nuclei of the nerve-sheath.

Most of the studies on the regeneration of epithelium have been done on the cornea, and the following facts have been ascertained: when repair commences, the epithelium cells that lie on the margins of the lost tissue put out buds, which become broader, and then separate to form independent cells. Some believe that the nuclei are obtained by a division of the nucleus in the budding-cell, others do not.

When repair takes place in vessels, pointed buds appear at at the cut ends of the vessels a few days after the injury; some are short and some are long; in union by first intention they stretch over as far as the opposite side of the wound; when granulations form, they arch over and form loops.

We know nothing definitely about the formation of connective tissue, and the prevailing idea is that it can only be regenerated through the medium of young cells, but it is uncertain where these cells originate. Billroth favors an old view published by him previous to 1869, that the tissue is formed from the wandering cells, which are themselves derived from the connective tissue by budding. This is very similar to the view of Rokitansky, that in inflammation the tissue softens and then buds or forms branching excrescences, and indeed it is in accordance with what is seen in serous membranes, for vegetations often form in them in chronic inflammations; it is also known that certain sarcomatous tumors grow in a similar way.—*Wien. Med. Woch.—Med. Record.*

Camphorated Chloral in Neuralgia.—Dr. Lenox Browne, (*British Medical Journal,* March 7th,) employs as a valuable topical application in neuralgia a mixture of equal parts of chloral-hydrate and gum-camphor. In every case he has found great and often instantaneous relief to follow its application. "Its success," he writes, "does not appear to be at all dependent on the nerve affected, it being equally efficacious in neuralgia of the sciatic as of the trigeminus. I have found it of the greatest service in neuralgia of the larynx, and in relieving spasmodic cough of a nervous or hysterical character. It is only necessary to paint the mixture lightly over the painful part, and allow it to dry. It never blisters, though it may occasion a tingling sensation of the skin. My friend, Mr. George Wallis, allows me to say that he has found it of great service as a remedy which patients can apply themselves for the relief of toothache; and to its success in this respect I can also personally testify. In the original article, the compound was recommended for arresting the progress of incipient boils and carbuncles. I have no experience of its value for this purpose."—*Druggists' Circular.*

Consanguineous Marriages.—This was the subject of a recent paper by Mr. Darwin, son of the eminent naturalist. He stated that the most thorough investigation ever made was contained in some papers *On Blood Relationship in Marriage*, published by Dr. Arthur Mitchell, a Deputy Commissioner for Lunacy in Scotland. This gentleman's inquiries were confined chiefly to Scotland, in which country the proportion of first-cousin marriages is larger than in any other portion of the United Kingdom; and the conclusion he arrived at was that, under favorable conditions of life, the apparent ill-effects were frequently almost *nil*, while if the children were ill-fed, badly housed and clothed, the evil might become very marked. This, said the lecturer, was in striking accordance with some unpublished experiments of his father's, "On the In-and-in Breeding of Plants," in which he found that in-bred plants, when allowed space enough and good soil, would frequently show little or no deterioration; but when placed in competition with another plant, would frequently become stunted or altogether perish.—*Med. & Surg. Reporter.*

The Teeth as Sexual Organs.—Dr. A. H. Thompson, in the *Dental Cosmos*, says, "As prehensory organs, the value of the teeth is great to many of the lower forms, for battle, as "secondary sexual organs," and the prehension of food, but in the higher animals the teeth have been superseded by the evolution of prehensile limbs, and the consequent suppression of this function in the teeth. In man we find the prehensory teeth suppressed to mere rudiments of former formidable and useful weapons, being reduced to the merest purpose for the prehension of food, and are utterly aborted as secondary sexual organs. This is a fact that cannot be mistaken, and is full of significance."

Medical and Dental Graduates.—The Medical Department of Nashville and Vanderbilt Universities has just graduated fifty-eight students. The Medical Colleges of the University of Wooster, thirty; the School of Medicine in the University of Maryland at Baltimore, fifty; the College of Physicians and Surgeons at Baltimore, thirty-nine; the Baltimore College of Dental Surgery, in the same city, seventeen; Yale, seven; the College of Physicians and Surgeons, Med. Dep. of the Syracuse University, eleven, one of whom was a female; the N. Y. College of Homœopathy, thirty-nine; the N. Y. College of Dentistry, sixteen.

Action of Mercury Upon the Blood.—Dr. Wilbouchewitch, of Moscow, (*Archiv. de Physiologie,*) has made a practical application of the ingenious apparatus devised by Mahassez for counting the blood corpuscles. This apparatus briefly consists of a fine capillary glass tube of definite capacity, so small as to bear a microscopic examination with an object glass capable of defining the blood corpuscles. The blood is diluted with artificial serum, placed in the tube, the corpuscles counted. By a simple calculation it is easy to ascertain the number of corpuscles in a given amount of blood.

He found that in the healthy subject the number of blood discs averaged 4,600,000 to the cubic milimetre. In different individuals it varied from four to six millions, but in the same subject the number remained pretty constant.

In syphilitic subjects examined before the beginning of specific treatment, the author found a progressive decrease of blood corpuscles amounting generally to more than 200,000 daily. As soon as mercurial treatment was instituted (of one and two-thirds grains of proto-iodide was begun) the blood corpuscles began to increase in number at the daily rate of 120,000 daily. This increase continued during two or three weeks only. Then the number began to again diminish, so that in a fortnight the number ofdiscs was about the same as at the beginning of treatment. If now the treatment was suspended, the destruction of corpuscles ceased, and in about a week the blood began to grow richer at a daily rate of about 90,000. As a general rule the white corpuscles underwent variations inverse to those of the red corpuscles.

These experiments teach that the administration in syphilis should be intermittent in order that the drug shall not itself act as a destructive agent upon the blood corpuscles—*Boston Medical Journal.*

Epistaxis Arrested by Compressing the Facial Arteries.—Dr. Beverly Robinson succeeded in arresting a hemorrhage from the nose, after the failure of other methods, including the plug of India-rubber bag, by constant pressure applied to the facial arteries. The pressure was made on the superior maxillary bones, just before the arteries reach the alæ nasi. Two small pads of lint were sewed to a tape at the proper distance apart, and the ends of the tape were passed around the head above the ears, and tied securely behind. The bleeding immediately ceased, and returned only when the pressure was removed for a short time. In a few days the cure was complete and permanent. Iron and tonics were also employed. If the plan should prove generally applicable and efficacious, Dr. Robinson will receive a liberal measure of gratitude and honor.—*New York Medical Record.*

New Method of Arresting Hemorrhage.—Dr. Webber, in a clinical lecture, describes a new method of arresting arterial hemorrhage. The principle on which his method is based, is to increase the circular contracting force of the arteries. If powerful enough, it is evident that this force would be as efficient as in the smaller arteries. To effect his object, he turns the end of the vessel inside out, as we would turn up the cuff of a sleeve. Thus he doubles or trebles the amount of contractile force. In executing his notion, he obtained an instrument by which he could fix the vessel at the time of turning over its coats. In experiments on dogs, he obtained satisfactory results, and found that he could prevent the vessel from becoming straight again, after the reflection had been made, by simply notching its extremity at each end of a transverse diameter. The notch was made through the two walls—the main and the reflected, and commencing at the point of the reflection, extended about two lines in a longitudinal direction. If this proves insucffiient to retain the reflection *in situ*, he introduces immediately behind the point of reflection a delicate little peg, made of the end of a number twelve English sewing needle. Should this fail to arrest bleeding at once, he applies digital compression for a short time to the end of the artery. He has successfully tried this plan on the anterior and posterior tibial, the brachial and femoral arteries.—*Medical Record.*

Solubility of Salicylic Acid.—Salicylic acid is very sparingly soluble in cold water, requiring at least five hundred times its weight of that fluid to hold it in permanent solution. The addition of certain alkaline salts increases its apparent solubility. Among these sodium phosphate has been especially recommended. It seems probable that an acid phosphate and a salicylate of sodium are formed, as the solubility of the sodium phosphate itself is also greatly increased. If this is the true explanation, it is probable that the antiseptic powers of the salicylic acid are partially lost in the solution made of the acid by this salt. Ammonium phosphate has also been employed, but is probably liable to the same objection. Sulphite of sodium is now recommended as yielding a solution possessing antiseptic powers of a high order. One part of salicylic acid, two of sodium sulphite, and fifty of water, furnish a solution free from irritating properties, and especially applicable to the treatment of zymotic diseases.

Glycerine warmed will dissolve one-fiftieth of its weight of salicylic acid, and the solution may then be diluted with water to any desirable extent.—*Detroit Review of Med. and Phar.*

Structure of Tumors as Related to their Character.—Dr. W. S. Savory directs attention to the structure of tumors, as indicating their character and clinical history.

Thus, tissues which are simplest in structure, and mode of development, are most apt to form the substance of tumors, as, for example, connective tissue. The most elaborate tissue, in these respects, striated muscle, is very rarely, if ever, found as a distinct morbid growth, and it is comparatively rare to find even unstriped muscle as a separate mass in the substance of tumors.

In the elementary structures of tumors there is an inverse ratio between the tendency to progressive and destructive metamorphosis. The less the structures of which a tumor is composed tend to change from their primary or embryonic form, the more abundantly will they multiply, so that those tumors whose structures retain most nearly their primary form, are the most malignant. And as the structures of a tumor are capable of transformation, so do they lose their power of repetition, so that those tumors that consist most completely of fully formed tissue are the most innocent.—*British Medical Journal.*

Narcotizing Horses.—The *Gaz. Med. de Bordeaux* says that an eminent veterinary surgeon has informed the Medical and Surgical Society of that city that the coachmen of certain families had been for some time in the habit of administering chloral to the horses in their charge, so as to make them easier to ride or drive. It appears that the drug acted like a charm, for horses which had previously been so spirited as to give much trouble to their driver, became as quiet as lambs after a few days of this hyposthenic treatment. The change naturally attracted the attention of the owners of the animals, and they sent for the veterinary surgeon to ascertain the cause of the sudden gentleness. That functionary noticed a certain tendency to sleep in the animals, but scarcely knew to what to refer this unusual condition, when, in one of his visits, he chanced to find a bottle half full of chloral. When the coachman was questioned regarding the use he made of the drug, he confessed, after much hesitation, that, following the advice of a brother "whip," he gave the horses a dose of chloral every morning to make them go quietly—and further, that many of the fraternity in Bordeaux followed the same plan.—*Medical Record.*

Women-Doctors in Russia.—The Russian journals announce that the first bevy of women, [fourteen in number,] trained as assistant-surgeons, under the charge of the Ladies' Committee of St. Petersburgh, will complete their three years of prescribed studies this month, [December,] and be prepared for service.—*Lancet.*

Relation of Alcohol to Animal Heat and Muscular Power.—Dr. Richardson, in a series of lectures, adduces a series of facts, from which the following are logical deductions:

Alcohol is disposed of in the living body by other processes than simple direct elimination. But alcohol is not a builder of any tissue, even of fatty tissue. During every stage of its administration, except the first, alcohol reduces animal temperature. Thus it is not burned after the manner of food that supports combustion. It is decomposed into secondary products by oxidation, at the expense of the oxygen, which ought to be applied to the natural heating of the body. Further, as animal heat is reduced, so is the excitability of muscle, until at last, as narcotism is developed by the spirit, the muscular power is brought down to the extreme of prostration.—*London Lancet.*

Snow as a Hæmostatic.—Dr. Hane (*Centralblatt far Chirurgie* No. 38, 1874) recommends very highly snow as a means of preventing hemorrhage in those operations in which Esmarch's method cannot be used. A handful of dry snow pressed upon the bleeding wound he found in a case of tracheotomy to act most favorably; soaking up the blood like a sponge and arresting the bleeding.

Warts.—Dr. Guttceit recommends rubbing warts, night and morning, with a moistened piece of muriate of ammonia. They soften and dwindle away, leaving no such white mark as follows their dispersion with lunar caustic.—*Druggists' Circular.*

Nitrous Oxide in Tuberculosis.—Dr. C. W. Larison reports a case of miliary tuberculosis, in which, after the failure of all ordinary remedies, nitrous oxide was used with most desirable results. Improvement was very slight at first, but steadily increased until complete recovery resulted. Cutaneous circulation assumed its vigor, muscles performed their functions with greater precision, the pulse became stronger and less frequent, appetite became voracious, weight increased, etc. The amount of gas taken was about five gallons a day at intervals.—*Cinn. Med. News.*

A Convenient Local Anodyne.—Take of elastic collodion, one ounce; hydro-chloroform of morphia, fifteen grains. Dissolve the morphine salt in the collodion. Spread, with a camel-hair brush, some of this solution on the painful part, and place some oiled silk over the spot. The effect is stated to be most satisfactory.—*Med. & Surg. Reporter.*

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ARTICLE I.

The Causes of Irregularity in the Development of the Teeth.

[Concluded.]

BY N. W. KINGSLEY, D. D. S., M. D., NEW YORK.

I do not find in any of my reading that any author on the causes of malposition of the teeth has made this direct connection between the abnormality and disturbance of the nerve center during the formative and eruptive period; but I do find a large array of facts, confirmed by my own observations, which point in my own mind to this only conclusion, and although other observers of similar facts have attempted in many instances an explanation of what they saw, they have failed to refer them to any satisfactory *primary* cause.

In Mr. Mummery's paper, before referred to, in speaking of *diseases* of the teeth, he says, "It is to be feared that a large amount of dental disease is originated by overtaxing the active brain of children. According to the best authorities, the most rapid increase in the growth of the brain takes place before seven years of age; and it must be remembered that the crowns of all the permanent teeth, with the exception of the third molars, are simultaneously in the course of development with this great advance in the size of the brain. May we not, therefore, reasonably suppose that through the diminished vitality consequent upon this diversion of the formative energy from the teeth, by premature mental exertion, these organs necessarily become degenerated, and that this circumstance constitutes one great difference between the teeth of the intellectual and those of the uncultivated families of mankind?"

Dr. Nathan Allen, in his remarkable discourse delivered before the Massachusetts Medical Society, commenting upon the change going on in the human organism of the present day, says,—

"This charge indicates the existence of less muscle, more nerve; less physical vitality, more nervous energy; less power of endurance, but more mental activity.

"This same change is also indicated in the anatomy and physiology of the person. The framework of the body generally is not so large, is not so compact, nor so well proportioned; the countenance is paler, the features are more pointed and not so expressive of health, though more so of intelligence. The texture or quality of organization is more delicate and refined; the brain is becoming developed more and more relatively, and too frequently at the expense of the body; or, in other words, the nervous temperament, with all its advantages and disadvantages, is becoming too predominant for other parts of the body. As one of the consequences we have more diseases of the brain and nervous system, more sudden deaths from apoplexy, paralysis, and also from diseases of the heart. * * *

"The removal of so large a proportion of the population from the country and rural life to cities and large towns; the change of employment from farm-work,—from out-door exercise and the more laborious mechanical pursuits,—to lighter kinds of business, with increased exercise of the brain; add to this the greatly increased strife, excitement, and competition in every department of business and society, —all these changes must serve gradually to diminish muscular power and the general vitality of the system. No truth in vital statistics is better established than the fact that large cities and a dense population tend to diminish the physical energies of the body and shorten human life.

* * *

"The simple reason is, as we conceive, that their style of living taxes the brain altogether too much; it develops a great predominance of the nervous temperament at the sacrifice of other parts of the body, which by inheritance is increased from generation to generation. The balance of structure and harmony of function in organization is radically changed, and carried to an intense development of nervous tissue, which in its very nature is unfavorable to the procreation of offspring. * * *

"But it is in the accumulated, the intensified effect produced by the law of inheritance, that the most striking and destructive results are to be witnessed."

My argument from this now almost universally recognized condition is this: during the formative and eruptive periods of the permanent teeth they are under the influence of an independent and peculiar vital (nervous) force; this innervation pushes on their development regardless of the more tardy growth of the osseous system; being implanted in a crowded position, in undeveloped maxillæ, they never have an opportunity to recover from it, and emerge in the same disordered arrangement in which the crowns were formed.

The correlation and the connection would seem to be unmistakable. Under such circumstances it would not be expected that any or all organic changes in the nerve center would manifest the same results in detail; a disturbance of function would produce general results, the details of which might vary in every case.

That such a lesion or innervation could only operate upon the permanent teeth is easily seen, when it is remembered that to produce any marked effect upon the deciduous teeth, we should have to go back to intra-uterine life for the period of its influence, and before the child had an independent and sentient being.

This hypothesis does not find any seeming contradiction in our daily observation, for such a disturbance of nerve function might occur only for a limited period, and no other exhibition or evidence of it ever again appear.

In meditating some time since upon the subject, I came to the conclusion that, if my deductions were correct, I should find proof of it in an examination of individuals of sluggish or feeble intellect, and at that time I wrote this sentence:

"In an examination of idiots, we shall be likely to find capacious jaws and teeth not crowded."

If a precocious or stimulated brain in infancy urges on and crowds the dental organs in advance of the growth of the jaws, then a brain of low calibre, or power, will be likely to have associated with it a retarded dentition, but with abundance of room.

After this conclusion of my own, I came across a paper by Dr. Langdon Down, Physician to the Earlswood Asylum for Idiots, near London, and read before the Odontological Society of Great Britain.

Dr. Down's statement, founded upon his observations of nearly a thousand feeble minded patients, were so astounding, and so at variance with my theory, that the picture which I had painted seemed to vanish like a vision.

His most startling statement was embodied in these words:

"A marked character of the teeth of idiots is their irregularity as to position. They are often crowded,—so crowded as to present their sides instead of their anterior surfaces.

"They are often arranged on different planes. The canine teeth are frequently unduly prominent, and a marked sulcus is sometimes seen between the incisors and canines, with prominence of the incisors. * * *

"Of the most significant value, however, is the condition of the palate. I have made a very large number of careful measurements of the mouths of the congenitally feeble-minded and of intelligent persons of the same age, with the result of indicating, with some few exceptions, a markedly diminished width between the posterior bicuspids of the two sides." * * *

"One result, or rather one accompaniment, of this narrowing, is the inordinate vaulting of the palate. The palate assumes a roof-like form. The vaulting is not simply apparent from the approximation of the two sides; it is absolute, the line of junction between the palatal bones occupying a higher plane. Often there is an antero-posterior sulcus corresponding to the line of approximation of the two bones." * * *

So constant and universal did Dr. Down state that he found irregularities of the dental organs of one form or another, that he relied upon the evidence of the mouth as a valuable factor in making his diagnosis of the character of the idiocy. This essay, coming from so distinguished an authority, called forth an article "On the V-shaped Contracted Maxillæ," from the pen of Mr. Charles Tomes, who undertook to trace these phenomena back to their origin and explain them.

This contracted or V-shaped arch, I gathered from Dr. Down's paper, was the most inimical and the most pronounced of all deformities of the dental organs, and this statement in particular wast he most contradictory of my own hypothesis and of m£ personal observations: for during a period of twenty-five years I had been noting and treating all forms of abnormalities, and the V-shaped or contracted arch was universally associated with a higher order of intelligence. On the very day of this writing, I examined the mouth of a lady in which there was seen contracted and V shaped arches in both upper and lower jaws of most decided character. The lady was one of unusually well-balanced mind and of a superior order of intelligence. No ordinary observer could possibly associate any feebleness of intellect with the abnormality in the person of this lady.

To gather evidence from a more extended field, and, if possible, to reconcile seeming inconsistencies, I undertook an investigation which has been continued with more or less interruption until the present time.

In entering upon an investigation of this kind, with a view of demonstrating a fact in science, it is of the utmost importance that there be no ambiguity of language or terms. I have heretofore spoken of the normal type of the dental arch being a regular curved line.

I wish now to state that the absolutely, perfectly regular line is very rarely found in either ancient or modern skulls. To be more explicit, it will be found that nearly every case which would be pronounced regular by an expert on looking at it, will show variations when put to a mathematical test.

For instance, if a piece of soft wire be bent around the outside of the circle so as to touch every tooth, it will show places indicating that certain teeth are either within or without the line, and yet the deviations are so little as to be hardly observable by the ordinary critic.

Such deviations as this I do not class under the head of irregularities, because they are no more out of the limit of normality than are the varieties of feature in different members of the same family.

Furthermore, it is not certain that they are in any sense developmental in their origin, and if not they cannot be used as an argument in an investigation into development.

My own opinion is that, with the exception of inherited deformities, almost all cases of slight peculiarities of position result from the accommodation of articulation with the opposing jaw.

We remember their anomalous position before eruption ; if they continued to grow in the same direction, great general disorder would be the result.

That they ever come perfectly into line, is due partly to the enlargement of the jaw encouraging it, and partly from articulation with the antagonizing teeth on occlusion. As it is only *inclined* surfaces that come in contact, we can readily see that a jaw which has the full measure of natural tendency to regularity, may thus show some deviations, as the permanency of the structure is attained.

A peculiar rotary movement in masticating, when teeth are erupting, may be sufficient to throw a bicuspid ever so slightly out of position, which malpostion may be considerably increased or it may be corrected, by contact with the opposite tooth on occlusion.

In the investigations I am about to describe, I used pieces of thick card-board cut about two and a half inches square, which were inserted in the mouth, the teeth closed, and with a pencil a line was drawn around the circle and close to the teeth. In such a diagram both the size of the arch and its form can be studied.

My first visit was to the inmates of the Asylum for Idiots upon Randall's Island, numbering about two hundred. The result was as follows:

I did not see a single pronounced case of V-shaped dental arch; I saw but very few cases of narrowed palatine arch; I saw but three or four of saddle-shaped palates, *i. e.* where the sides of the palate approximated in the bicuspid region.

I saw but little irregularity in the positions of the teeth; very few teeth that were out of line, whatever that line was; what little malposition there was, was generally confined to the six front teeth; of these six, the lateral incisors were more generally at fault, being inverted, everted or twisted. It was not a common thing to find the canines out of line.

Many of the malposed cases were those where the teeth were still erupting, and did not show such abnormal position that I would have felt justified in interfering if the patient had been brought to me for treatment. There was every reason to hope that, when fully developed, they would appear in good position. There was also many cases of retarded dentition.

There was no more irregularity, decay, loss of teeth, or neglect, than I have seen in the same number of youth picked up from the street.

The prevailing impression was, that I had seen an unusual number of well-developed jaws; they would average larger than the fully developed jaws of the average of my patients; and that they were above the average for density and probable durability.

The dental arch was generally a broad and regular curve; the variations from this, but within the range of normality, were a smaller circle, anterior to the bicuspids, and straighter lines behind them.

The lower jaw corresponded with the form of the upper in nearly every case, and therefore the articulation was almost always *good.*

There were three or four cases (the ones with saddle-shaped palates) where there was a narrowed or somewhat pinched condition of each side against the first molar, with which the lower jaw did not correspond, and the lower teeth articulated there outside the upper ones. There were no cases (save that of John Rawse) where there was any more deformity of contracted sides than is seen in the cases which I have treated, and which are described and illustrated in *Johnsston's Dental Miscellany* for the current year.

Associated with the last-named peculiarity, there were four or five where the superior incisors appeared tipped up, as in the so-called thumb-sucking cases, and which it is quite possible were caused by sucking habits; in some of them a vertical gap, of from one-quarter to three-eighths of an inch, between the incisors of both jaws when the teeth were closed, was observed.

There were several cases where the arch was well curved upon the right side, but the left side showed a variation from that curve and a depression of the line. There were more cases where the arch was depressed on only one side than upon both.

I did not see a single case in which there was any abnormality of size or shape of the jaws before the eruption of the permanent teeth.

I was informed that a very considerable number of these patients are of Hebrew extraction. The others are made up from nearly all civilized nationalities.

These conclusions differed so much from Dr. Down's observations, that I almost doubted my knowledge of what constituted normality and what constituted depravity.

To familiarize myself further with the subject, I went into a somewhat extended investigation of different classes, conditions, and races. In the youth of our public schools, above twelve years of age, I found ample facilities of one kind, and among the various nationalities and races represented in our metropolis, I carried the investigation further. For example: I hunted up every "*Heathen Chinee*" that I could find in New York (and there is a colony of about three hundred,) and took a diagram of his mouth. Recently while spending a number of weeks in Switzerland, I devoted some time to an investigation of Cretinism, and later I obtained authority from the Public Administration of Paris to visit the asylums and hospitals, and make an examination of idiots.

Assisted by Dr. John W. Crane, who rendered me most valuable aid, I made a personal examination of between three hundred and four hundred idiots, with a result in nowise dissimilar to that narrated somewhat in detail of the asylum on Randall's Island, and therefore unnecessary to recapitulate.

By a comparison of my observations of idiots with that of all ranks and conditions in life, as reprerented in our public schools, I found that, take the idiots as a class and compare them with the lower orders of society as found in this country, and there were no more irregularities in the one than in the other.

In both cases did I find that amply-developed jaws and teeth were the rule, and narrow, pinched, and V-shaped maxillæ and dental arches were the exception. And this was equally true of the idiots in France and of the Cretins in Switzerland, among whom I did not see a single case of narrowed arch or high vaulted palate.

From conversations with those in charge of the education of the idiots, I was able to note the intellectual status of the patient and the corresponding condition of the dental organs. It was thus I discovered, that in those cases where there was a fair physical constitution and development, the intellect in a progressive state, and considerable hopes entertained of mental improvement, the jaws and teeth were in a normal condition. As the scale descended until we arrived at that melancholy condition of absolute idiocy, upon which all improvement was hopeless, I found jaws and teeth, and in a measure, the whole physical condition, degenerate. Thus did I see the extremes and the gradations beginning with a sluggish or feeble mind, in a fair organization with well developed jaws, descending in regular sequences through all the grades of imbecility to unconditional vacuity, associated with corresponding disorganization and degeneracy of the teeth, jaws, and whole physical system.

This experience had been so uniform on both sides of the Atlantic, that it was with feelings of hesitation as well as of desire that I accepted an invitation from Dr. Down to visit his asylum, near London, and see for myself the evidence upon which his convictions were based.

Together, we made a careful examination of every inmate of the institution, with a result not so widely different as I had supposed must exist.

There were to be sure, a larger percentage of irregularities of the teeth than I had before observed. About five per cent. might be said to be pronounced cases of narrowed or V-shaped arches, and another five to ten per cent. might be said to have more or less tendency in that direction, but of the more positive cases I did not see one so marked as I have seen and treated in private practice, and associated with full intellectual development.

Of the total number, I could not pronounce one-half, or fifty per cent., as showing an irregularity of dental development out of the range of normality, or that might not have arisen from accidental causes operating on the crowns of the teeth after eruption, and therefore only incidentally connected with idiocy, and in nowise correlated thereto.

In justice to Dr. Down, I must say that I found in him an enthusiastic co-operator, without any pet hobby to sustain against evidence, and only too glad to obtain aid in his investigation into the symptoms of idiocy from any source.

It was with the hope of obtaining aid that he went before the Odontological Society, with the expectation that the observations of experts in dentistry would throw some light upon the subject.

In this way only is to be accounted for the difference of opinion which existed between us upon many cases which seemed to him an unduly high vault to the palate, narrowed arch, or irregularity, but which, to my eye, came clearly within the limit of normality. Nevertheless, there was no mistaking the fact that there was a larger percentage of the kind of deformities which he had described, than I had found in any other collection of idiots. This fact was the less contradictory of my former experience, and the less puzzling, when I learned that nearly all the cases which I had seen were the offspring of noble families, or of the higher orders of society, which, in Great Britain, are more strongly markėd than in any other portion of the civilized globe.

From one of Dr. Down's conclusions I must still dissent. In his essay, he says, "It was in my inquiry into the condition of the teeth and mouth especially, that I arrived at the conclusion that, in by far the larger number of instances I was able to indicate the period at which the depressed condition commenced, and to predicate in some degree the amount of improvement which physical, intellectual, and moral training might possibly effect.

"In children where idiocy is accidental, arising from causes operating after uterine life, there is but slight deviation from normal condition in the state of the mouth and teeth, while it is in those whose malady is congenital, especially where arising from causes operating at a very early period of embryonic life, that the deviation of the mouth and its appendages from a normal condition is most pronounced."

I cannot see any connection between these phenomena and causes acting especially "at a very early period of embryonic life;" when we consider that the deciduous teeth are well placed, and that it is only after they pass away that abnormality appears, also that it is only at the very latest period of embryonic life that even the germs of the permanent teeth are found, it is difficult to conceive the connection or correlation.

If the cause antedates the birth of the child, I should seek for its origin, not during the intra-uterine life, but as a like deformity existing in the progenitor, and associated with a *tendency* to idiocy,—developing into idiocy in the child, and carrying with it the physical deformity of the parent.

If there was always a disturbed condition of the deciduous teeth, we might pronounce on the congenital origin of the idiocy without hesitation, but when we find the deciduous teeth regular, and the permanent ones only irregular, we cannot find in this, evidence of nearly embryonic disturbance.

With the panorama before us of the development of both sets, we can only say with confidence that the abnormality of brain did not iufluence the position of the teeth until about or after the period of birth,—being the period covered by their growth.

Not long since, Mr. C. S. Tomes published an ingenious and somewhat elaborate theory, "On the Development

Origin of the V-shaped Contracted Maxilla," basing his arguments upon the investigations of Dr. Down.

Instead of accepting his hypothesis as justified by the premises, I am confirmed in the belief that wherever such abnormalities as he describes appear in unmistakable congenital idiots, they will be found peculiarities of transmission by inheritance,—like deformities existing in the ancestry.

Again, Dr. Down says, " An appeal to the condition of the mouth is an important aid in determining whether the lesion on which the mental weakness depends is of intra-uterine or post-uterine origin. In the event of the mouth being abnormal, it indicates a congenital origin; while if the mouth be well formed, and the teeth in a healthy condition, it would lead to the opinion that the calamity had occurred subsequently to embryonic life."

This opinion of Dr. Down is exactly the opposite of my own. There are so many cases where the proof is incontestable that the idiocy is of congenital origin, and where the dental development is perfect, that if I were to draw any proof from the facts, I should say that the regularity of the dental organs showed conclusively that there had been no lesion or disturbance of the brain (in the true sense) after birth, and that the teeth grew regularly in accordance with physical laws under a low order of intellect.

These remarks, of course, do not apply to epileptics, nor to imbeciles who were bright in infancy, and from any cause, afterward, degenerated.

Let it be borne in mind that no irregularity in the position of the dental organs is any evidence of idiocy in the individual. The cases are so common where such deformities are found associated with the highest order of intelligence, that if I were to draw any inference from that condition in the abstract, I should say that it was more likely to indicate a precocity of mental development in the child, and very possibly a more brilliant intellect in the adult. At all events, it does conclusively prove a disturbed cerebral condition at some period in the child's history; or, if it is the result of hereditary taint, shows such a condition in the progenitors, which has originated from like causes, and, unless checked, will become intensified by transmission under similar surrounding conditions; and the future history of that family will be mental degeneracy.

An inherited taint, disturbance, lesion, predisposition, or tendency to idiocy, of which these irregularities are only a symptom or proof, may show itself in a precocious mental development in one instance, and be the precursor of insanity in the same individual, or appear as idiocy in posterity.

A resume of my experience and observations shows the following results. In private practice I have seen a very large aggregate of dental deformity, and in most instances associated with an intellectual capacity above the average of mankind.

These abnormalities have not been confined to any prevailing type, but have included nearly every possible variety of irregular development. In the public schools, among the middle and lower classes of society, I have found but a small percentage of pronounced irregularity. Such as I have found was in nearly every case among the brightest children of the schools.

Among the children of good physique and fair mental capacity, the development was on the whole regular and normal; a noticeable fact being that the jaws were generally capacious and ample for the regularity of the teeth. In an occasional instance, there might be found a jaw of undue capacity and with separated and straggled teeth. One instance of this kind was particularly marked, and on making inquiry of the principal as to the status of the scholar, I was told that she was the dullest one in the school of over three hundred, and, although of an age to justify an entrance into the highest class, she could not rise above the lowest.

In the examination of idiots I have endeavored to separate those where the mental defect dated from birth, from those who in infancy showed the average mental capacity, and who from accident or disease afterward degenerated into imbeciles.

No more reliance is to be placed upon an examination of the jaws and teeth of the latter class, in a question of development, than upon an examination of the inmates of an insane asylum.

Confining myself to congenital idiocy I found only a small percentage of pronounced irregularity in form of the jaws or arrangement of the teeth, and that generally associated with the lowest type of idiocy and the kind of which mental improvement was the most hopeless. Associated with deformities of the jaws were usually other abnormalities of physique showing a general constitutional disturbance.

Among the Cretins, capacious jaws were universal. Only among idiots drawn from the higher classes in Great Britain were there found exceptions.

My collection of evidence on this subject closes with another extract from Mr. Mummery's paper: "The Australian races exhibit in the configuration of the skull the lowest type of the human family. The cranium in these people is very narrow, the forehead low and receding, the teeth—especially the canines—project in a striking manner, and other irregularities were frequent.

"The physical character and habits of the Tasmanian race (now nearly extinct) so closely resemble the Australian that I need only observe that in all points relating to disease, irregularity, etc., the defects of the Australian are exaggerated in the Tasmanian."

The deductions which I make from this array of facts, made up from all ranks and conditions of life, including races, nations, and classes,—ancient and modern,—from the highest order of intelligence down to the idiotic, are as follows:

A perfect dental development is the result of well-balanced physical and nervous systems, without hereditary taint.

The causes of irregularities I classify as developmental and accidental: the developmental operating prior to the eruption of the teeth, and the accidental subsequently.

Abnormalities of development having their origin in the same individual are due to a disturbance of the trigeminal nerve during the period in which the crowns of the permanent teeth are forming and arranging themselves in the jaw prior to eruption; or, when arising from causes antedating the life of the individual, are traceable to an inherited tendency, which tendency had its origin in a like disturbance in one of the progenitors, and was subsequently transmitted or are the result of mixing different and distinctly-marked types of jaws and teeth by the progenitors.

In our view we do not call a feeble mind, a sluggish brain, or a dull intellect, a nerve lesion or a brain disturbance. For it is abundantly proven that when this condition is associated with an average physique, the development of the dental organs is tardy, but in regular order.

We have before us, then, both the solution of the problem and the evidence of most alarming symptoms in the physical and mental condition of the inhabitants of the centers of civilization.

There can be no question that the Creator intended there should be perfect harmony in the development of physical and nervous systems, and that where such harmony exists we come nearest to the standard of a perfect organization. This harmony of organization or true balance of the two systems demands that in the earlier years of life the brain and the nervous system be held in abeyance to the physical.

The healthier mental organization is of slower growth. If, therefore, we find that a certain mode of life destroys this harmony, breaks up this balance, there will follow necessarily deterioration and destruction of the race; and this is based on well-recognized physiological law; if the brain and the nervous system are in an undue state of activity, the drain upon the sources of nutrition will be at the expense of the physical system.

No force operating on the brain can interrupt or alter the type, or inherited model of the dental arch, after the first decade of life. All brain disturbances occurring during that period showing mental aberration, we should class under the general head of idiocy—imbecility. After that period, such manifestations come more properly under the head of lunacy,—insanity,—which might degenerate into imbecility or idiocy.

Consequently, neither lunacy nor insanity, in the ordinary acceptation of the terms, can have any direct bearing upon the development of the dental organs; but such a condition would be most potent of evil if transmitted to offspring.

I do not hesitate to place it upon record that the next generation will see more of abnormality in dental development, and an increase of nervous and cerebral diseases, and that the two are correlated and spring from the same cause.

It is too late to stop it in those who have passed infancy, but it is not too late to modify and partially remedy the evil in those now being born, and those who may be begotten hereafter.

To fathers and mothers surrounded by luxury and flattered with the precocity of their infants, which they are stimulating to the last degree, I say, You are the enemies of your race; you are sowing the seeds of nervous, mental, and physical disorders, from which the harvest will be fearful, and the end death to your family and your name. Do not, under peril, encourage this brilliancy of your child, which is now so charming; let the mind stagnate rather.

For the first seven years of life give concern *only* to his morals and to his physique. Nourish him as you would nourish an animal from which you desired the finest development, stimulating *only* his moral nature, and his intellect will take care of itself. Thus, if we have no hereditary taint, you will have laid the foundation of a splendid specimen of his race.

ARTICLE II.

How far are we Justified in Anticipating Proximate Decay?

BY E. D. SWAIN, CHICAGO.

Read before the Illinois State Dental Society.

"Anticipate, to be before in doing, to do or take before another, take up beforehand or before the proper time,—to anticipate, supposes some ground or reason in the mind for considering an event as likely to happen, and in the practice of dentistry the question arises as to how far we are warranted in anticipating decay of the teeth; or in other words, how far are we justified in operating upon these organs for the prevention of anticipated decay?

It is a question of no small import to us as well as our patients, how we shall best forestall or prevent this destruction. That nearly all teeth are predisposed to decay, we are but too well aware. The conditions are so numerous, and the causes so obscure, that the difficulty of adopting any general rule must be obvious. Still I will endeavor to give my views, imperfect as they may be, as to when we are justified in anticipating decay, and the means to be employed to prevent it.

During the past fifteen or twenty years, comparatively little attention has been given to this subject by the profession at large. We have been satisfied to allow the destruction to proceed to a certain stage, and then use such means as in our power for arresting it; of late, however, the means of prevention has, to a certain extent, enlisted the attention of our profession.

In a paper of this character, it would seem proper to first consider, with our present knowledge, the character of teeth most likely to decay; which teeth and upon what part of them we are warranted in anticipating decay, as well as what means are to be used to prevent, in the largest number of cases, the commencement of decay of these teeth. Much to our discomfort, we are well aware that the deciduous teeth are, in our day, liable to decay; and the question frequently arises, whether in view of the fact that they must eventually be lost, any effort should be made to preserve them. I labor under the conviction that several important reasons exist why they should be, so far as possible, saved. The first is to prevent the suffering to which children are frequently subject, as the result of decayed teeth. The second, to avoid the injury to the general health which is the inevitable result of disease and loss of these teeth, and thirdly to prevent such irregularities as sometimes result from their premature loss. In my own practice, I do not in its fullest meaning, anticipate the decay of these teeth, but when upon frequent examination I detect evidences of decay upon proximal surfaces, I separate as freely and thoroughly as circumstances will admit of doing; and my experience, I think, warrants me in asserting that more of these teeth can be saved by this means than by any attempt at filling.

The anticipation of decay upon the mesial surfaces of the first permanent molars will not seem ambiguous to any person present, in case the second temporary molar is in its place; and the practice for prevention as given by Arthur in his work on "Treatment and Prevention," cannot fail to impress all as correct, and certainly no objection, from this point can be offered, viz: the cutting away of the distal surface of the second temporary molar in such a manner as to make a permanent space, and prevent any possible contact of the two teeth above the margins of the gums. The practice of some of allowing these teeth to go to destruction, with the avowed intention of extracting them at a later period believing thereby in all cases to secure more room, and an isolated condition of the remaining teeth cannot, in my estimation, be too emphatically condemned. If this end is accomplished, in the majority of cases it is only by the early removal of the tooth, before the other permanent teeth make their appearance. It must be admitted, however, that in isolated cases, good results are sometimes accomplished by the removal of the first permanent molar, viz: in cases of crowded arches, accompanied by an imperfect articulation of bicuspids. If however, the bicuspid teeth articulate perfectly, that is two upon one, in such a manner as to break joints, as it were, the cuspids and incisors are effectually prevented from spreading. I am convinced that better care of the first molars will enable us to save them, and in case it is desirable to sacrifice a tooth for the purpose of gaining more room for the other teeth, that it is a better practice to extract a bicuspid, from the fact that it is more difficult, in the majority of cases, to save these teeth by filling or filing. In fact, the more I read and practice Arthur's treatment for prevention of decay upon proximal surfaces, the stronger are my convictions that we have no more sure remedy. His advice as regards the prevention of decay upon these surfaces of all the permanent teeth as they are being erupted by cutting away the proximal surfaces of the adjoining temporary teeth, certainly cannot be condemned; and we all know that during the process of shedding the temporary and erupting of the permanent teeth, the mouth is not in its best condition; generally there is more or less a diseased condition of the soft tissues. The fluids are not unfrequently vitiated, and in a condition to expedite decay, and if we can by Arthur's or any other operation, preserve free from decay the permanent teeth through this period, we have greatly increased the chances of their being saved through life.

If decay attacks the central incisors on their mesial surfaces during the first or second years after eruption, I think we are fully justified in anticipating decay on the proximal surfaces of the other anterior upper teeth, and if permanent artificial spaces are not made between them, we may wedge them apart sufficiently to polish the proximal surfaces at points of contact. And I am of the opinion that by frequent wedging for this purpose another advantage may be gained: the arch is expanded, and the teeth are either permanently separated, or at least so much so that there will be no pressure at the point of contact. I am led to this belief from the fact that several adult people who once had crowded teeth, have informed me that the constant use of the floss silk or strips of india rubber, which I had advised for the purpose of cleansing the proximal surfaces, soon spread the teeth so much that no difficulty was experienced in the operation of cleaning them in this manner or with the pick.

Of the kinds of adult teeth most liable to decay, all are as well informed as myself. The white, chalky tooth, deficient in organic tissue, has perhaps given us all more thought and anxiety than any other class. With my present experience I am not prepared to give a general rule applicable for the treatment of such teeth. I have in mind one typical case of this class of teeth, which it may be well to mention here. Several of these teeth had been filled and re-filled by one of our most careful and efficient operators, upon their proximal surfaces, in such a manner as to preserve their contour; they however, persisted in decaying at their cervical margins. The lady applied to me about three years since, to have the bicuspids re-filled; in doing so considerable spaces were necessarily made, and in one or two instances superficial decay was removed; being one who cares for her teeth, I was called upon to examine them frequently, and in the meantime the separation of teeth as a means of prevention had been brought to our notice, and the results were so flattering where I had separated for filling, as well as where superficial decay had been removed, that I have since made permanent spaces between nearly all her teeth; and although three years have elapsed since the first operations, I must acknowledge my pleasure at the result as manifesied. I will not occupy your time by reporting other cases treated in like manner, though I have adopted it in all cases of similar character, with uniform success so far as I am able to judge.

There is another class of teeth which has given me much anxiety, viz: the short, round (or square) yellowish tooth, standing close together and very regular; the kind of teeth so liable to mechanical abrasion upon their grinding surfaces, not very liable to be attacked by caries, except upon their proximal surfaces. In my own practice, I do not hesitate to use the disks, making free and permanent spaces, as advised by Arthur, and I have yet to see the teeth thus separated which have caused me to regret the means used.

We are also warranted in anticipating proximal decay where the teeth are of the long, flat order, (such as are *almost* invariably to be met within persons of a consumptive diathesis,) standing, as they do, in close contact, and especially in cases where the fluids of the mouth are in that condition which experience has taught us is conducive to decay, especially where they do not receive the most scrupulous care. Further, in those cases of irregularity, where the labio-distal surface of one tooth is covered by the palato-mesial surface of its neighbor, or *vice versa.* In these cases, I know of no method so effectual as to make such a separation as to leave the teeth permanently apart, unless it be for the second class mentioned, the operation of regulating. Every one present, of extended experience, cannot fail to call to mind such cases treated as above, in which the decay has been permanently prevented or arrested.

That class of teeth presenting the bell-shaped crowns, forming by their peculiar structure a triangular space, bounded by the teeth above the point of contact on two sides, with the gum as the base of the triangle, are especially liable to decay upon their proximal surfaces; and while this class of teeth are easily kept clean, if the possessor gives them the necessary attention, still we often see these pockets filled with the food of several days, preceding an examination;—with this class of teeth, more objections may be raised to the Arthur treatment than with those above mentioned, still I am under the impression that it may be profitably used here, by chiseling away the bulge, leaving a

V shaped space opening into the mouth, thereby reducing the point of contact to its minimum. While the greatest enemies of the Arthur method admit that perfect cleanliness would save many teeth from decay upon their proximal surfaces, still they contend that self-cleansing surfaces cannot but prove destructive, simply because the enamel has been removed. They ignore entirely the vital change so well established, which takes place in exposed dentine for its own protection as well as that of the pulp within. They virtually dispute such authorities as Tomes, Salter, and others whose investigations have proved beyond question, that not only in cases of decay and abrasion, but where the enamel has been artificially, so to speak, removed, that the dental tubuli are filled with lime salts, the result of which is a dense surface, resisting the ravages of decay, and in cases of abrasion, chemical or mechanical, capable of receiving a polish equal to the enamel itself, and almost, if not quite capable of resisting the attacks of decay or caries as well as the enamel itself. Mr. Salter also informs us (and who that has examined into this matter will not agree with him) that dentine of repair, as he terms it, is invariably deposited upon the inner ends of the injured tubuli, whether the injury arises from decay, abrasion or fracture; if this be true, why are we not justified in expecting these changes when the file has been used for the removal or prevention of decay? For my part, I believe my own observation warrants the acceptance of this theory as correct.

Investigation is every day proving to us, that the teeth are not so void of vitality as we were once led to believe, and that under proper conditions they do possess the vital power to resist the attacks of disease, as well as, in a measure, to repair themselves when injured. Notwithstanding we are informed on page 442 Missouri Dental Journal, Dec., 1874, that this vital force is a positive disadvantage, and that teeth possessing the greatest amount of it are the ones most liable to be attacked by disease; in other words, we are told that what we have always conceded to be a pathological condition, is on the contrary the highest form of life in these organs. Webster gives us the definition of vital—"as belonging to life, either animal or vegetable, as vital energies, powers, &c.; as contributing to life, necessary to life, as vital air, or blood; containing life, living, or being the seat of life. Being that on which life depends, capable of living or in a state to live." I understand that disease of a tissue, either animal or vegetable, portends death, unless the disease be removed,—and who has not learned that caries and exalted sensitiveness are diseases, and portend death to the teeth thus affected. I do not understand that great vital force, as we use the term, is ever the cause of disease. If however, it so proves, we will accept the corn argument upon page 451, and recommend at once that upon our return home, each dentist present proceed to devitalize all the teeth in the mouths of patients presenting themselves for treatment.

In recommending Arthur's method for prevention of decay of the teeth, I do not wish to be understood as advising the indiscriminate use of the file or disk; good judgment is necessary, more, perhaps, than in deciding when and how to fill a tooth. When I first read this book, I laid it down with perhaps as much prejudice and dissatisfaction as any one present. I have since read it in a more careful manner, have observed carefully all teeth which came under my eye from which the enamel had been removed, from any cause, and the result is, I am becoming converted to a careful, discriminate use of his method. If wrong, I am anxious to be set right, and hope to learn much from those present, upon this subject.

SELECTED ARTICLES.

ARTICLE III.

Nitrous Oxide Gas.

BY H. J. BARNES, M. D., OF BOSTON.

Read before the Suffolk District Medical Society, October 31, 1874.

Since the discovery of the anæsthetic properties of ether, in 1846, the subject of anæsthesia has occupied so large a portion of our literature that, reluctantly, I invite your attention to another chapter.

But with the object of correcting what seem erroneous views respecting the administration of nitrous oxide gas, which have recently been published, and to show how it may be made useful and practicable, in place of ether, for painful examinations, short operations, and the adjustment of broken bones, this paper is prepared.

In the *Journal* of September 22, 1852, Vol. 48, No. 8, this subject was referred to in a communication by H. A. H., replying to the question, "Is nitrous oxide gas an anæsthetic?" The writer begs leave to reply, briefly, that it is not, and challenges the production of a case proving it is; after which, he cites the experiments of Davy, who said he breathed the gas for a week, and at the end had an increase of sensibility to pain, and it only proved to be intoxication. In a number of subsequent papers, in the same volume, these statements are refuted by numerous satisfactory experiments. But, since, that time, the subject seems to have attracted little attention, until a case of death from its use was reported in the *Lancet* of February, 1873, page 174 which, by the way, is the only disastrous result from its use

I have been able to find. The writer, in a review of the case, remarks "that a dentist stated to him 'that he never extracted a tooth until breathing had temporarily ceased;'" and then, in regard to this case, says "the first symptoms were rapidity of pulse, with diminution of volume, but the immediate cause of death was paralysis of respiration. Nitrous oxide gas, indeed, is not an anæsthetic at all. A true anæsthetic is an agent which suspends sensibility without, by any necessity, interfering with those processes on the continuation of which life depends. Nitrous oxide acts not in this way, but by suspending, for a brief period, one of the most important of the organic processes, that of respiration itself. For the reason named, the insensibility produced by the gas is a period of partial death. This interval, transient, doubtful, dangerous, may allow an operator time for a short operation, and, the agent away, the suspended function may return." A French chemist, writing recently on this subject, says "the gas only asphyxiates." Within a year, I have read an article in the Boston Medical and Surgical Journal, mentioning the attendant asphyxia when anæsthesia is produced by gas.

By the courtesy of the dental firm of Dr. Ball and Fitch, of this city, for the past four years, I have been permitted to use their office and gas for such operations as I saw fit, and I have had the advantage of many valuable suggestions as the result of their ten years' experience with the gas, during which time it has been administered by them not less than 15,000 times.

Ordinarily, a person is anæsthetized in from one to three minutes, by from twenty to one hundred inhalations of the gas, by which three or four gallons are consumed. The gentlemen spoken of recall but two patients who could not be brought under its influence. After breathing the gas continually for ten minutes, neither was sensibly affected in pulse, respiration or consciousness, and it was given up.

They remember a larger number, who, at the period of excitement, resisted its administration, and it was, for this reason, obliged to be suspended, they not having the means necessary to confine the patient, and compel the continuance of the inhalation through this stage.

Excitement, intoxication and narcotism are so distinctly observed as when ether is used, and this, too, without asphyxia, for this is accidental and not the necessary result.

The popular notion that it only asphyxiates, is perhaps, explained by the imperfect method of administration when first used, inhalation and exhalation being carried on through a single opening, into a rubber bag, holding from five to ten gallons, necessitating the continued breathing of air and gas used many times. This is now changed, and inspiration is from the gasometer; while expiration closes the opening, and is carried on through another communicating with the surrounding air.

Asphyxia is now a comparatively rare occurrence, particularly if we follow the rule I quote from Dr. Bigelow's paper, entitled, "Alleged Death from Ether," published last year in the *Journal* of Nov. 20th. "We should aim at anæsthesia by inebriation, not by asphyxia." If lividity be noticed when gas is used, a half turn of the stop-cock admits air, and the same relief is the result as when this condition follows the administration of ether and the sponge is removed.

The advantages in using gas in place of ether are briefly as follows:

The shorter time required to anæsthetize.

It is more agreeable.

There is rarely subsequent vomiting.

Its effects pass off quicker, three or four minutes being usually sufficient.

There is no danger of ignition when used.

The cost is very much less. Fifty dollars will purchase a complete apparatus for its manufacture, and about four cents a gallon will pay all other expenses.

It is made from the nitrate of ammonia, which is placed in a glass retort over a spirit lamp. It quickly melts, and, apparently boils, but it really undergoes decomposition, and is resolved into gaseous nitrous oxide and steam. It is passed through four jars, holding about two gallons each of water, and one, containing a solution of potash, to remove impurities. It is then conducted to the gasometer, and is ready for use.

The compressed or liquid gas is put in iron jars, holding what is equal to one hundred gallons of gas. These are filled, at six dollars each, and put in portable boxes, a foot and a half long, and about eight inches deep. With an inhaler, a rubber bag as a reservoir for the gas, and the necessary rubber tubing, the price is forty-eight dollars.

I have not observed hilarity as often in patients under its influence as with ether. A few pugnacious, excitable people are with difficulty carried through the different stages without a struggle. Usually, the gas is taken from this class when their ruling passion is manifested. After the excitement has passed, a little explanation of its effects dissipates their fear, and, with renewed inhalation, they go off quietly.

Ten minutes is the longest time I ever kept a patient under its influence. There were no unpleasant symptoms accompanying or following its use in this case, which was for the removal of a small tumor over the orbit. I should not hesitate to continue it longer, were it necessary, and, since writing this paper, I have been informed, by Dr. W. H. Baker, of its employment in two cases of ovariotomy, one of them lasting over an hour and a half, during his service in the Women's Hospital, of New York.

I have used it thirty-five or forty times in the removal of wens, opening abscesses and felons, the extraction of ingrowing nails, &c., and in each case the effect was satisfactory.

The expense and inconvenience of transportation will perhaps preclude its general employment in private practice, but, for hospitals, it seems particularly adapted.—*Boston Medical and Surgical Journal.*

ARTICLE IV.

The Treatment of Exposed Pulps in Filling Teeth.

BY SAMUEL WELCHENS, D. D. S., LANCASTER, PA.

Read before the District Dental Society of the Seventh Judicial District of the State of N. Y., at Rochester, N. Y., June 1st and 2nd 1875.

In the treatment of the subject in hand it is not our purpose to go into a detailed and scientific investigation of the nature and character of that portion of the dental organ known to science as the pulp, but more commonly denominated "the nerve." Its composition, character, and general bearing upon the nutrition, texture and vitality of the tooth should be so thoroughly understood by every dental practitioner as that such an investigation here would be entirely superfluous. If we go back to the earlier stages of dentition, and trace the most interesting of all formative processes through its changes and developments to the end, and then contemplate the causes and ravages of disease upon the dense tissue until the pulp is involved in the disorder, we should have such a vivid appreciation of its nature and character as to render it necessary that its treatment when exposed should partake of the greatest care, and be fraught with the highest scientific attainments.

The pulp is not the only source of vitality to the tooth, nor does its death necessarily involve the complete death of the organ. But its relation to the general structure and growth of the tooth is of such a character as to render its life an essential factor and principle to such an extent as to make its preservation a leading feature in the treatment of the tooth, which, of course, calls for the highest scientific ability upon the part of the operator.

It is my purpose to treat the subject in hand under three heads, namely:

1. The liability of striking the tubuli when excavating a cavity preparatory to filling, and the treatment.
2. The exposure of the pulp proper, either by caries or the instrument, and its treatment.

3. The extirpation of the pulp when too much diseased for conservative treatment, and the filling of the cavity.

THE DENTAL TUBULI AND FIBRILLÆ.

It is well known to the careful student of dental tissue that the calcification of the teeth is not the work of a day. The process is a slow and tedious one, and so delicate in its function as to render it subject to the slightest aberrations of the nutritive process, thus causing imperfections of structure, weakness of tissue, and often serious malformation. These are sometimes seen upon the surface, but often are hidden in the body or substance of the tooth when it seems to be perfectly developed. The process of vitrification commences with the dentine, hardening inward from the inner surface of the enamel until the pulp has been reduced to its normal size or limit. After this there is no change in the structure of the tooth, except that which is caused by caries or a slight hardening of the tissue in after life, whereby the pulp is somewhat diminished and the fibrillæ perceptibly shortened by the ossification of the tubuli. Hence we find that in young teeth the fibrillæ which enter the tubuli, and are elongations of the substance of the pulp, and especially in teeth that, through some constitutional or nervous weakness, become frail and chalky, spread outward boldy, approaching the surface of the dentine and sometimes even penetrating the enamel, so that they are easily reached either by caries or an instrument when the disorder is slight and the cavity exceedingly superficial.

We are apt to say of such teeth when treating them tha "they are all nerve." It is to this class of teeth and this kind of structure that attention is here called.

The elongation of the fibrillæ above referred to is the result of one of two causes; either a malformation of the dentine in the process of calcification whereby minute fissures are left in its structure, which are usually filled with the albuminous material of the pulp, or through some disturbance of nervous energy during the process of dentition, rendering the whole structure of the teeth frail and chalky, thus causing the extension of the tubuli a necessary provision in the nutritive process by producing a stimulant which is designed by nature to supply with animal matter what they failed to receive in enduring texture.

We find a similar provision of nature in the vegetable kingdom. A plant or tree, when in active vegetation, throws out fibrils from the main branches of the root, thus obtaining an immense absorbing surface just when the most nourishment is needed. After the season of active vegetation has passed and the plant has borne its fruit, the fibrils die and decay off, and the body of the root receives the elaborated sap, the material for which they contributed so much in gathering up the crude elements from the earth.

The fibrillæ of the teeth seem to hold the same function, though in structure and character they are vastly different. In the case of children, when, in consequence of rapid growth, the demand for nutrition in all the tissues is greater than in the adult, and especially when the teeth are weak in texture, the elongation of the fibrillæ affording a larger nutritive surface seems to be necessary. And then when time and age have done their work of perfect development, and the teeth are rendered more dense, the pulp containing all the elements of dentine is diminished, the fibrillæ very frequently through the process of calcification are hardened into dentine and disappear altogether.

When a tooth containing these extended tubuli is attacked by caries, the disease need not extend far below the surface in order to strike the fibrillæ and involve the pulp. In excavating the cavities in teeth of this character, the tubuli are often opened with the instrument, and the fibrillæ laid bare, and even portions of them cut off, when there is no more pain than in ordinary sensitive dentine. There may be no soreness immediately resulting than occasionally slight trouble from thermal changes, or the inconvenience of an unpleasant consciousness that the tooth is there, but a discolored tooth, in a year or two after the operation has been performed, will tell the tale. How often are we not confronted with devitalized teeth in the mouths of some of our most confiding patients, when upon removing the filling we find the pulp dead from an operation which we regarded at the time it was performed as perfectly secure and successful, and the failure of which we could trace to no other cause than filling upon the exposed fibrillæ. The danger of thus encountering those vital tissues should be kept steadily in mind by the operator, and when a cavity in the kind of teeth above described extends to any depth below the surface, care should be taken that it receive proper treatment before the filling is inserted.

For the purpose of closing up the mouths of the tubuli, and thus protecting the exposed fibrillæ, Canada Balsam is often used. I am not prepared to commend or condemn this treatment. My objection to it is that it is a vegetable substance containing no medicament of much value, and as a simple stoppage of the mouth of the tubuli it may be improved upon by a substance less liable to stagnation and disintegration.

I think the most scientific and the most reliable treatment that can be instituted is to apply upon a pledget of cotton either diluted carbolic acid or creosote as an antiseptic, and then cover the bottom of the cavity with a thin coating of oxychloride of zinc or Guillois' cement, and fill upon it as soon as it is hard. We have in this treatment not only an antiseptic and a good firm covering for the mouths of the tubuli, but the cement being an astringent and absorbent both the effusions and gases which may be the result of the injury, slight though they be, will be quickly taken up, and thus a perfect and enduring substitute is at once afforded.

In my practice I have no failures with the above treatment.

TO BE CONTINUED.

ARTICLE V.

Treatment of a Fractured Tooth.

BY THEODORE G. LEWIS, D. D. S.

Read before the Eighth District Dental Society, Buffalo, N. Y. May, 1873.

This case of a fracture of a tooth is reported as presenting features and perhaps suggestions that may on some future occasion be of service, or, at least serve as a hint in the treatment of an analogous case.

The occurrence of two cases exactly similar is quite improbable, as are many operations within the scope of dentistry. In filling teeth, for instance, no two cavities are precisely alike, yet the principle which enables ,us to prepare and properly fill one cavity, is applicable to other cavities to a certain extent; so in the following, the principle involved may enable one to treat successfully a similar case of fracture.

Mr. P. sustained injuries by being thrown from a sleigh sometime in January, 1875. Among the injuries was one to the left superior central incisor.

An examination some two months subsequent to the accident found the gums much inflamed immediately over the injured tooth, with a profuse discharge of pus. The crown of the tooth very loose and capable of being moved something like three-sixteenths of an inch either way from its normal position. By placing the fingers over the root of the tooth and impairing motion to it, crepitation was readily detected, indicating that the labial plate of the alveolus directly over the tooth was fractured; the palatine portion of the socket remaining intact.

An incision was made over the tooth sufficiently large to remove a small portion of alveolar plate which was found displaced, and the fact was then revealed that the tooth itself was fractured diagonally toward the palatine surface, the crown being entirely separated from the root and only retained in position by attachment of the soft parts to the lingual side of the tooth.

The fracture was situated about five thirty-seconds of an inch above the margin of the gum, and was from front, downwards and backwards, at an angle of about seventy degrees, as near as could be ascertained.

The pulp of the tooth previous to the accident had died or been devitalized, and after having the operation called rhizodontrypy performed upon it by one operator, had been successfully treated and the root filled with gold by another. The condition of the tooth previous to coming to my notice was as follows: a large right-approximal gold filling; pulp destroyed and nerve canal filled; but the opening made when rhizodontrypy was performed, left open. The fracture occurred at the immediate point where the orifice had been drilled, it evidently being the weakest part of the tooth.

It was obvious that the presence of pus was not due to a diseased condition of the tooth or consequent upon the fracture, but from the small pieces of detached alveolus that acted as an exciting cause of inflammation. After the removal of these, an application of a saturated solution of iodine in creosote was made and repeated every third day. Three applications sufficed to restore the soft parts to a nearly healthy condition.

The patient being a public lecturer, did not wish to be deprived of the tooth, as it would greatly impair his enunciation, and as pivoting an artificial crown to the root was impracticable, in consequence of it being broken so high up, it was at length determined to *bolt* the natural crown to the already separated root.

To successfully do this, it became necessary to devise some mechanical means to firmly hold the crown in its place,—as it would be impossible to drill a hole in the crown in its loose condition,—and in an exact line with the nerve canal in the root; besides, it was desirable to exclude from the joint the chips that would be made by the drill. To accomplish this, an impression of five anterior teeth, including the defective one, was taken, and a band of hard rubber made, about three-sixteenths of an inch wide, and encircling the five teeth above mentioned. This held the fractured tooth firmly in position while drilling.

The drills used were twist drills,—such as are used by workers in metal,—of three sizes, viz., Nos. 55, 53 and 44. Stubb's wire guage, cemented into handles by means of shellac. The burring engine not being used in this case as it was important to *feel* the progress of the work.

Drill No. 55 was first used and carried through the crown and to about five-sixteenths of an inch above the fracture, then followed by drill No. 53 through the *crown* of the tooth only. Drill No. 44 was then used to enlarge the orifice to within one-eighth of an inch of the fracture. This gave a shoulder for the bolt-head to draw up against. The hole in the root was now ready to be tapped out, or screw cut, which was done with a tap of suitable size.

The bolt or screw was made of Stubb's steel wire. Having used a steel screw on previous occasions for securing artificial crowns to roots, and found it to answer admirably, it was preferred in this case to one of gold, by reason of its greater strength, and, as I believe, answering a better purpose than gold.

A piece of the steel wire No. 42 was taken, sufficiently long to admit of its being handled conveniently, and one end filed till it was reduced to three sixty-fourths of an inch in diameter, and seven-sixteenths of an inch long. A thread was then cut on it five-sixteenths long. It was then inserted in the tooth before being cut from the steel, to ascertain if it fitted perfectly. After removal from the tooth, the screw was cut from the steel wire, leaving sufficient metal above the shoulder to form a head one sixteenth of an inch high, which after being nicked for propuls on by a small screw driver, completed the bolt. It was now placed in position in the tooth, and screwed into the root till the crown was brought firmly against the fractured surface. A gold filling over the head of the screw completes the operation.

The result proved very satisfactory, and the crown being so securely bolted to its root, was equally as firm as any of the teeth in the vicinity.

Its permanency may be questioned, not as to the security of the crown to the root, for there is scarcely a possibility of its ever being dislocated, but pathologically. Still, the conditions remaining the same as at the time of its completion, it will certainly be as permanent as an ordinary artificial pivot tooth; and it seems probable that the fracture being so high up and protected by the gums, that there is less liability of the joint being disintegrated by the action of the fluids of the mouth, than are pivoted roots with the joint between crown and root, immediately at the margin of the gum.—*Dental Advertiser.*

ARTICLE VI.

A New Splint for Fractured Jaw.

BY FRANCIS H. ATKINS, M. D.

On the 6th of August, 1874, I was called to see a tramp (aged about twenty-six years,) near Fort Wallace, Kansas, who, for a petty theft, had, the previous afternoon, received frontier justice at the hands of the aggrieved owner.

His head was badly bruised, cut, and swollen; the eyes closed; nose and mouth full of blood; his lower jaw fractured in two places, and the interior of the mouth so much lacerated and swollen that he could scarcely breathe or swallow. The jaw was broken (1st) at the angle on the right side, and (2d) between the left canine and left lateral incisor. The fragment—embracing the whole of the front and right side of body of jaw—was depressed, refracted, and drawn to the left side, in each direction about one-third of an inch, bringing the incisor behind the adjacent canine and below it; the right lower corner of face being strikingly depressed. At the angle there was no apparent displacement, though very free motion, crepitus, etc.

There being a complete absence of all the usual facilities for treating such cases, an attempt was made to wire the pieces together at the anterior fracture, but it failed, and on the 10th I applied a splint which I devised for the occasion, made of simple materials, that might he had at sea, etc., where such an emergency might arise.

The splint was made of a piece of hoop iron, two inches long, and from one-third to one-half inch wide, with its corners filed smooth, and four small holes punched in it to correspond respectively with the spaces between the middle incisors, and between left-middle and lateral incisors, the line of fracture, and the space between the two left bicuspids.

The object in view was to attach a brace to the left side of jaw, so that the large fragment could be drawn forward bound to it, and so be held in place. With a dental drill a small hole was made between the lateral incisors, and a space filed between the middle incisors. Between the bicuspids a natural opening existed near the gum.

The splint, being curved by stout forceps to suit the curve of the jaw, was first wired to the bicuspids through the corresponding hole in the splint; then one end of a fine, well-annealed, iron wire (suture wire) was passed into the hole in the splint corresponding to the space between the left lateral incisor and canine, and through the corresponding interdental apertures into the mouth, where the ends were seized by small forceps turned forward again and brought through the aperture between the left pair of incisors and out through the splint upon its anterior surface. By this means a loop was found for the left central and one for the left lateral incisor. As soon as gentle traction was exerted on the wire ends, the fragment moved steadily upward and forward and toward the right, with an ease that was fairly surprising when contrasted with the great digital force previously required in attempting to replace the fragment.

When the wire was drawn firmly and clinched, the replacement of the fragment was absolutely perfect, and the outline of the face fully restored, and both remained so. A Barton's occipito-parietal bandage finished the dressing. Although the patient—against orders—constantly opened his mouth for greater ease in swallowing and even masticated to a certain extent, no further adjustment was required. Owing to the splint having been a trifle wider than necessary, a small abrasion of the lip occurred after several weeks, but was easily remedied, and might have been obviated had the splint been narrower. The splint caused no discomfort, and the man often remarked that his jaw "felt so easy."

Disinfectants were used freely in the mouth until the lacerations healed. He was well in about six weeks, having worn the splint continuously. In many cases sufficient interdental spaces already exist, but the injury to the teeth in this case was trifling compared with the serious condition of the jaw. A subsequent search through all the medical literature—standard and periodical—I had access to, has made me believe this splint sufficiently novel to describe in the *Record*—that noted in the Bellevue Hospital Report, *Medical Record*, March 16, 1874, not excepted. Its simplicity would seem to recommend it in cases of much injury to the soft parts.—*Medical Record.*

EDITORIAL. ETC.

The Late Meeting at Long Branch.—The following account under the heading of "Dentists to the Front"—"A Poet"—"Fun among the Dental fraternity at Long Branch"—"Buying up the Press"—appears in the *New York Evening Express* of August 12th, 1875. Who the parties referred to are, we do not know, as the proceedings have not yet been published, but the person feeling most aggrieved can, we suppose, make a defence, so that both sides can be heard from. The *American Convention* appears to have enemies in its midst, and its struggle for existence has been a long and severe one. This society has been patronized by a few New York dentists, since the organization of the "American Dental Asoociation" which absorbed all of its leading members, and lately another rival, under the name of the "American Academy of Dental Science," has been instituted in New York city, which bids fair to completely annihilate the "American Convention." The following is the article referred to:

(*Correspondence of the N. Y. Evening Express.*)

Long Branch, August 11, 1875.

"The Dental Convention, which has been in session here for two days, and which closes to-morrow, has been marked by some peculiar proceedings. A certain defunct dentist of the city of New York, in order to gain a new base in professional life, read a poem. This gentleman continually interrupted the President of the Convention in his honest efforts so much that the latter gentleman has put in no appearance to-day.

The Dentist heretofore referred to, although known to be a man of no literary attainment, not knowing even how to speak a sentence grammatically, fostered upon the convention a poem supposed to be his own, although members of the Convention, who knew him, were well aware that it was not his own composition. It was plain to all present, that this gentleman wished to carry on the Convention for one purpose, that is an advertisement of himself. However, there was material in the Convention, which they will now carry home in their pockets, that would have enhanced the interest of the dental profession had they even but given the opportunity to do so; matters of importance, to the country, as well as the profession, would have been introduced, had it not shown itself in the Convention, that jealousy prevailed among certain parties against certain New York dentists, who had the advancement and interest of the profession at heart, the subject matter of which I allude to, is held for the third Tuesday in October, when the American Academy of Dental Surgery convenes in New York, to wit.: 'the appointment of a Dental Surgeon to the Military Academy of West Point and the School of Annapolis, also to different corps of the U. S. Army, which has been under consideration of the Government since 1869.' A paper then will be read setting forth what has been done, and the advancement made in that direction.

The gentleman heretofore mentioned, for the consideration of $10, (which fact he acknowledged in public to the members of the Convention,) bought up the little local sheet and placed two columns of solid matter at his service, in which he eulogises himself in a self-praising manner, to say nothing of publishing his beautiful poem on Grant and his prancing steeds, and high life at Long Branch; this poem, which it can be unmistakably seen, was written by a lady, took the space of over a column, while his speech on 'the great President,' as he dubs Grant, was handed to the local sheet for publication early Monday morning, long before the Convention went into session.

The 21st annual meeting of the American Dental Convention has come to a conclusion without any apparent professional success. It was, however, shortly urged by a member from New York to bring the young men to the front and lift the Convention from the rut, in which it has been for the last four years or more. Had the Convention been managed in a more thorough and business manner, Capt. Leland, who placed the Ocean Hotel at their disposal, would have been honored by over 500 of the dental fraternity, instead of the small number who felt interested enough to attend."

The American Academy of Dental Surgery of New York.—A new society under the above name has been instituted in New York, similar to the Boston "Academy of Dental Science," in its object, and is officered as follows: President.—Geo. H, Perine; Vice-President.—Alfred P. Merrill; Cor. Secretary.—Frederick S. Howard; Rec. Secretary.—N. M. Beckwith; Treasurer.—R. P. Perry; Curator.—John P. Adams; Librarian.—George S. Meigs.

If the members of this new society are equal to their officers in reputation and character, as we have no doubt they are, by taking an active interest in its welfare, such an association must be productive of great results. Their object as set forth in the Charter, is to extend the knowledge of Dental Surgery, to cultivate and develop closer professional relations among its members at home and abroad, to draw out and mature the latest talent evinced by the young and rising members of the profession, and to secure a higher appreciation of the profession, and advance the standard of Dental Science to that position of honor and dignity to which it is so surely entitled.

OBITUARY.

Dr. R. M. Gage.—Died July 26th, 1875.—New York, July 31st, 1865.—A special meeting of "The American Academy of Dental Surgery" was held this evening to do honor to the memory of our worthy fellow, Dr. R. M. Gage.

The President, Dr. Geo. H. Perine, then stated the object of the meeting, and gave a brief sketch of the professional life of our deceased Fellow.

He stated "The Academy had been called upon to mourn the loss of one of its most respected and beloved Fellows, Dr. R. M. Gage, at the time of his death, Vice-President of the American Dental Convention.

"This sad occurrence took place at his residence, No. 47 West 49th Street, in this city, on the 26th July.

"Dr. Gage was born in Bedford, N. H., 1822, and at an early age developed a love for his profession, which he successfully pursued up to the time of his death.

"The funeral services were held in the presence of a large assemblage of his friends and professional brethren. Dr. Gage leaves a widow and two sons, one of whom is pursuing the practice of medicine.

"In conclusion, I desire to add my tribute to his worth. I knew him long and well, and I know that I feebly reflect your own thoughts in saying that I cannot but feel that his record was pure and untarnished; that he was a Christian man, a courteous gentleman, ever affable and genial, noble minded, generous and forgiving—always faithful to life's duties, he was an honest man, a good dentist, and as such we deplore his loss, not only to our Academy and the Profession, but the social community in which he moved."

A committee was then appointed to prepare resolutions expressive of the sorrow felt by this Academy in the loss of our late brother, as well as the high esteem in which he was held by the Fellows, who submitted the following preamble and resolutions, which were unanimously adopted by the Academy:

"We have been called to view a Fellow and a brother practitioner stricken suddenly by death in the midst of his usefulness, and in the full maturity of manhood. Well may we mourn the loss of so good a man as Dr. R. M. Gage, and we desire to offer our tribute of respect, and to testify our estimation of his worth, Therefore be it

Resolved, That in his death The American Academy of Dental Surgery has lost one of its most valued Fellows, whose skill and untiring energies were devoted to its welfare and prosperity, and whose deportment and character gave dignity to our profession.

Resolved, That to his family we tender our most heartfelt sympathy, and though their loss be irreparable, pray that our Heavenly Father may sooth their great grief and bestow upon them the consolation of His providence and grace.

The committee also recommended the following. which was adopted:

Resolved, That an authenticated copy of the Preamble and Resolutions adopted by this Academy be forwarded to the family of our deceased worthy Fellow, and also to the Medical and Dental Journals.

[Attest,] A. P. Merrill, *Acting Secretary.*

MONTHLY SUMMARY.

Death from Ether Inhalation.—Unfortunately, even ether, it seems, is not to be inhaled always with impunity. A boy, aged 16, was operated on by Dr. Hardie, of Manchester, at the Workhouse Infirmary, on the 3rd of April, 1875. Four drachms of ether were poured on a piece of lint and placed in a folded towel, which was held pretty close to his face. There was no coughing, and but little struggling. He was ready for operation in about four minutes without any more ether. The respiration suddenly ceased, and the pulse at the wrist became imperceptible. The tongue was pulled forward and the poles of a battery applied to the phrenic nerves. Cold water affusion, artificial respiration and suspension by the feet were tried, without avail. The organs were found healthy. The cavities of the heart were empty. Probably death arose from syncope. Robbin's ether was used.

This is a most untoward event, because it may prevent the growing tendency to use ether instead of chloroform from spreading as it ought. Ether is certainly far safer and ought therefore always to be used instead of chloroform.—*The Doctor.*

Poisoning by Aconite.—Dr. J. E. Blake, in an interesting article in the *New York Medical Journal*, relates a very important case of poisoning by aconite and chloroform liniment. An hour after the poison was taken, "*no pulse could be detected even in the axilla, and she remained without any trace of pulse for a period of over three hours.*" Nevertheless, Dr. Blake persevered all day and all night with galvanism and artificial respiration, and was rewarded by complete success. He had previously, within half an hour of the poison being swallowed, used the stomach-pump until fluid returned unimpregnated with it; but enough had been absorbed to do deadly work. This patient became early *unconscious*, and remained so for many hours. Yet almost all writers assert that in aconite poisoning *consciousness* continues to the last. Could the chloroform account for the unusual fact? The lady had taken "a little more than a drachm" of the liniment, which consisted of chloroform and tincture of aconite root in equal quantities.—*The Doctor.*

Carbolic Acid as an Antiphlogistic.—Hagen (*Aerztl Intellig. Bl.*) reports several cases of phlegmonoust inflammation of the hand, croupous laryngitis, and croupous pneumonia, which he has cured by injections of a solution of carbolic acid in the proportion of 2,100 (one to two syringeful daily in adults, and half a syringeful in children.) Even after the first injection the fever, pain and swelling, were greatly modified. The injections were always made in the vicinity of the affected part. Kunge likewise reports happy results from this treatment in acute articular rheumatism and pneumonia.—*Med. Chir. Centralblatt.*—*N. Y. Med. Journal*

Physiological Experiment Upon the Human Corpse.—The experiments made by Drs. Keen and Seiler upon the body of Heidenblut, immediately after its removal from the gallows, showed that the internal intercostals are muscles of inspiration, and the external intercostals muscles of expiration; the former lifting the ribs, the latter depressing them. In testing the facial muscles, it was also shown that the pyramidalii nasi is a direct antagonist to the occipito-frontalis.—*Nashville Medical and Surgical Journal.*

Toothache.—Dr. Q C. Smith praises the following most highly: Take of carbolic acid saturated solution, chloral hydrate, saturated solution, paregoric, fluid extract of aconite, of each an ounce; of oil of peppermint half an ounce; saturate the pledget of cotton or a piece of sponge, and tightly pack in the cavity. *Charleston Med. Jour. and Review*, April, 1875.

Location of the Sense of Taste.—According to Dr. Davidson, of Liverpool, the results of clinical observation, and of physiological experiment appear to show conclusively that the sense of taste in the anterior area is dependent on the integrity of the chorda tympani, since injury to the fifth nerve, above the junction of the latter with it, although accompanied by complete anæsthesia of the side of the face and tongue, does not necessarily affect the sense of taste; whilst, on the other hand, when the chorda tympani is injured, or cut, taste is lost without loss of sensation. According to some, who regard the chorda tympani as a purely motor nerve, this is due to the affection of the functions of the submaxillary gland, or to the loss of power of erection of the taste papillæ. Neither of these explanations, however, appear to be satisfactory, and the weight of evidence would seem to be in favor of the view that some of the fibres of the nerve are afferent.—*Med. & Surg. Reporter.*

Efficiency of Mineral Water in Reducing and Adding Fat.—Perlet, the well known actor, whose leanness is described as "something phenomenal," naturally desiring to get "some flesh on his bones," a well-known physician of Paris advised him to go to one of the bathing places in the Pyrenees. Perlet accordingly went off to the prescribed locality, where he drank and bathed with the utmost zeal and perseverance. But neither drinking nor bathing seemed to have any effect upon him, and he remained just as much a skeleton as before. "Patience!" urged the local doctor, in reply to his expressions of disappointment; "there is nothing like the water of our springs for making people fat!" Soon after Perlet was patiently soaking himself in a bath, and heard a colloquy in the bathing cabinet next his own between the local Æsculapius and a lady of enormous obesity. "Doctor," remarked the lady, "I am really losing heart and patience." "Why so?" inquired the doctor. "Because, though I have been taking these waters regularly for two months, I am not an ounce lighter?" "Patience, madam!" said the doctor, in his most persuasive tones, "*there is nothing like the water of our springs for making people thin!*" —*The Doctor.*—*The Clinic.*

A New Cause for Blue (Lead) Line on Gums—A writer in the London *Lancet* asserts that the constant use of powdered charcoal as a dentrifice will produce a blue line on the gums closely simulating that of lead-poisoning.

Wine Drinking and Drunkenness.—Again we have it stated, this time by Dr. Lunier, in a paper at the Paris Academy of Sciences, that drunkenness becomes more general in proportion as the alcohol of commerce is introduced into common use. Thus, in wine-producing countries, where wine is the ordinary drink, drunkenness is rare; whilst, on the contrary, it is general in countries which do not produce wine. His remedy for this state of things is to give every possible facility for the consumption of wine in those countries where it is an imported luxury. —*Med and Surg. Reporter.*

A New Mode of Burial is recommended by a Vienna chemist. It consists in placing the corpse in a coffin of cement and then filling in around it with the same material made plastic by the addition of water. This is then covered closely by a cemented cover, thus preventing all putrefaction, and the absorption of the fluids of the body by the cement would soon mummify it. A coffin of this kind would cost but little more than an ordinary wooden one, and as the filling soon hardens, these coffins can, if required, be piled in tiers one upon the other.—*Clinic.*

Over-work or Over-play.—The question as to what amount of work can be performed by each patient must come daily before the medical man, and he is forced to answer it. The question is generally put by those who have already made the assumption that they are overworked, and therefore are willing to receive but one answer. Apart, however, from prescribing in accordance with the wishes of our patients, the subject is important, and one fruitful of discussion. The amount of work which each man or woman is capable of performing is dependent on their temperament and especial powers, and can only be gauged by their individual capacities. There are some young men whose brains are so weak that they cannot bear the pressure which is put upon them by a little sustained thought. Every year I see one or two medical students obliged to leeve their chosen profession and devote themselves to an out-of-door active life. They are quite unable to apply themselves to studies which required any concentration of mind, and at last they throw them up. I have seen the same in those who have intended to follow the law, and more than one banker's clerk who could not bear the drudgery of the ledger. Whilst writing these lines I have heard a young man, a Government clerk, speak of over-work,, although his office hours are only from nine o'clock until three. To discover the amount of brain-work proportionate to each individual lad is a difficult task ; but the cases I have mentioned show that there are persons who cannot sustain any mental tension. At the same time there are those in business, and the more the pity, who would have adorned any of the professions. I have known more than one mind made in a rare scientific mould entirely wasted. Apart, however, from these individual cases, which must be judged on their own merits, I am anxious to know whether medical men generally accept what seems to be a very popular opinion of the day, and which has been thought to be expressed in Mr. Greg's lecture, that society at large is really suffering from an amount of work, physical and mental, which is injurious to the individual, and therefore to the human race. That an opinion of this kind largely prevails I gather from conversation, and from the public prints; but lately I saw quotations from the sermon of a well known preacher, in which he declared that our asylums were filled with mad people, owing to the overwrought state of the nervous system in the present hard-working age. Now, if the question be put thus broadly—Are people suffering from overwork? I, for one, should have no hesitation in saying, No; but. on the contrary, if both sexes be taken, I should say the opposite is nearer the truth, and that more persons are suffering from idleness than from excessive work. Medically speaking, I see half a dozen persons suffering from want of occupation to one who is crippled by his labors.

I have therefore, very little sympathy with the prevalent notion that nervous and other diseases are due to overwork; and, as regards the statement of the preacher above mentioned, I apprehend he never thought of testing the truth of it by a visit to the public asylums, for he might then have been impressed with the sight of the numbers of the lower classes and the altogether unlettered persons confined therein.—*Dr. Samuel Wilkes, in London Lancet.*

A Calculus of Steno's Duct, having for its Origin a Grain of Wheat.—At the same meeting, M. Paquet reported the case of a man, fifty-two years of age, who had repeated attacks of inflammatory swelling of the cheek and molar region. The abscess had already opened several times into the mouth, before the patient came for treatment. The surgeon found a swelling of the duct of Steno, which was ulcerated at its edges, and he was able, by means of a curette, to extract from its orifice an ovoidal flattened calculus, weighing one gramme, which was followed by the escape of a large quantity of pus. Injections were made into the seat of trouble, and a rapid cure was completed. The examination of the calculus presented an interesting point in regard to etiology, for in its centre was found a grain of wheat.—*Med. and Surg. Reporter.*

Dangerous Compound.—*The Pharmaceutical Journal* of Vienna states that the following prescription was sent to a pharmacist: Chronic acid, eight grains; glycerine, one drachm. For external use. The dispenser dissolved the acid with a little water in a phial by a little shaking; the glycerine was then poured in, and the phial again shaken. Thereupon the compound exploded with a very loud report, and was projected with force to the ceiling of the shop. The phial which did not break, became coated with a black pigment, and remained in the hand of the frightened dispenser. The case deserves attention from the fact that the ingredients were in such small quantities and the explosion so powerful.—*Med. Record.*

A British Dental Association.—The last number of the *Monthly Review of Dental Med. and Surg*, contains a proposition for the formetion of a British Dental Association. It is proposed to assimilate its character and constitution to those of the British Medical Association, and to hold the meetingc at the same time and place as those of the latter.

An Advance in Dental Surgery.—Before "The American Academy of Dental Surgery," held on Thursday evening, June 10, 1875, George H. Perine, D. D. S., of New York, made some interesting remarks on the use of the galvano-cautery for oral surgery, which were followed by illustration.

Dr. Perine claims to be the first person who has applied that particular cautery in dental surgery. He has found no agent so available and so efficacious in certain dental operations as the galvano-cautery, and strongly recommends its use to the profession at large. The battery employed by Dr. Perine is one of great power, and is regulated to suit the operation. The advantages claimed are that it does not affect the body in any degree unpleasantly, because the electric action is absolutely confined to the parts in contact with the blade or broach, the application of which is painless, and so instantaneous that no other known agent can compare with it; the application of it is easy and simple, and free from shock and hemorrhage (a desideratum of great moment,) and finally, the separation process is rapid. Dr. Perine not only reasons warmly on this subject, so important, but he believes that the use of this particular cautery in dental surgery will become universal, for the extension of which he cheerfully imparts to his professional brethren his knowledge and experience.—*Med. Record.*

A Large Mouth.—Dr. Pixton, dentist, of Lancaster, has the impression of the mouth of a colored woman, taken by Dr. Robinson, of Rome, New York. The jaw is three inches from front to back, and three inches across, constituting the largest human mouth known to the dental profession in this country. The ordinary mouth is only 1½ by 2 inches.—*Med. and Surg. Journal.*

A Cure for Drunkenness.—The American *Journal of Pharmacy* says that in Russia, for some time past, Herba serpylli [wild thyme] has been used with great success to effect a permanent cure of drunkenness; in case of a relapse [only after years,] a short treatment will effect a cure again. The treatment consists in making an infusion of wild thyme [1½ oz to 1½ pints,] and giving the patient a teacupful every half hour. The next day it is given every two hours, and then four to six times a day until the cure is complete, which generally takes from 2 to 3 weeks. The effects are in the following order: vomiting, diarrhœa, increased urine, strong transpiration; then, generally, increased appetite and craving for acidulous beverages. The diet easily digested food, and lemonade or other acidulous liquids.—*Med. and Surg. Reporter.*

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ARTICLE I.

Probabilities.

BY G. V. BLACK, JACKSONVILLE, ILL.

Read before the Illinois State Dental Society.

How can we best know the probable result of operations in the varied and complex conditions in which patients present themselves? It is patent to every one that if in any case we should fail to determine this point with a reasonable degree of definiteness, we will be operating more or less at random. Such a course of procedure cannot be too strongly condemned. This is perhaps no easy question to solve; indeed, cannot always be correctly solved by the most able among us. But the degree of our knowledge of the cases presented, and the extent and accuracy of our own observations, combined with a just estimate of our own skill in manipulation, must always be our principle dependence in arriving at correct conclusions.

There are, however, some considerations outside, so to speak, of the dental school and the text-book, that it may be well for us to examine. We cannot always adopt that plan which the pathology of the special case seems to indicate, and by pursuing it rigidly do the best thing for our patient.

There are often surrounding and trammeling circumstances, not at all of a pathological nature, that must be taken into consideration if we would correctly estimate the probabilities of the case. These incidental conditions, or circumstances, accompany in some degree almost if not every patient that presents himself, and are as various as the persons; and it not unfrequently happens that it is more difficult to correctly define and estimate these surrounding conditions than to determine the pathological conditions and estimate their requirements.

I know of but one general rule that is of universal application, and that is to examine and treat each case with an earnest purpose to do that which will most benefit them under existing conditions and circumstances. If we do this we must necessarily learn something of the patient's habits and mode of living. We indeed learn to know, so to speak, many of our patients as soon as we look at them, but we cannot thus form a judgment that will always be well founded; and it is almost always best, if the patient by a stranger, to ask judicious questions as to their mode of living, their habits and general health, and their estimate of the value of their teeth, &c., and skillfully lead them to talk of themselves so that we may know something as to what there future course will be, and also as to what forms of disease may be exerting their influence upon the teeth, if diseased conditions exist. We will often find it best to extract teeth for one patient, and treat and fill for another, where the condition of the teeth themselves are precisely similar, owing to differences in health or habits. For instance: suppose a young lady presents herself with a large number of decays, in active progress, with a number of pulps exposed and giving trouble. After talking with her you find that she is of irregular and careless habit, and that her principal thought is relief from present suffering; and the conversation fails to elicit any satisfactory assurance that if the case is properly treated now, it will be judiciously followed up in the future—could we properly estimate the probable results of treatment as the same, as in a precisely similar case of decay, where the patient had a lively appreciation of the value of her teeth, and showed by word, and act, that our efforts would be seconded and future treatment followed up on her part? Certainly not? And it will often be best for our patient that we vary the treatment accordingly, removing perhaps a number of teeth for our careless patient, but being careful to reserve, if possible, those that are so situated, that all will be brought into active use in mastication. This is a point worthy of special thought. Where a patient will take no great care of her teeth, if we can reserve from the wreck of the molars and bicuspids a few that will serve the purposes of mastication and throw all the work upon them, this employment of them will do much to insure their preservation, and the probabilities of the case will be much better than they would be if we endeavored to preserve a greater number. I have, as I think, often found very great advantage from pursuing this course. It may sometimes call for the filling of some difficult cases, and the extraction of teeth less decayed, which at first sight might not seem to be justifiable but the sequel will generally prove it to be good practice. It may be urged, and properly too, that it is the business of the operator to overcome this carelessness in regard to the care of the teeth, by judicious instructions and advice. In common with our brother practitioners, we have essayed to do this with very varying results, many times accomplishing great good, but in most instances, I fear, that the probabilities of lasting good from this source is, to say the least very doubtful. We should not, however, cease to try it because we often fail. We can usually do most by showing by word and act that we are earnest, and careful, as to our patient's welfare, and carefully leading them to understand the necessity that our efforts be seconded and followed up by them, that they must take their part of the labor to insure the best results of treatment.

Failure of appreciation, while it is the most aggravating is not the only thing we have to contend with. Many persons who will gladly do all in their power are so situated that they cannot present themselves as the proper treatment of their case demands, and from this cause the probabilities of good from this or that course of treatment may be much diminished. It becomes the duty of the operator to search out these drawbacks and endeavor to pursue that general plan which gives the strongest probabilities of good results under these disadvantageous circumstances; remembering always, that the greatest part of labor we perform is for the future, rather than the present, and immediate good of our patient.

We are often called upon to treat for children; first molars that are not very largely decayed perhaps, but with exposed or abscessed pulps, or with pulps in a seriously inflamed condition, so that our best endeavors will fail to restore them to health. Now we can treat these teeth successfully for the present by removing the remains of the pulps and filling the roots. But what are the probabilities as to their endurance? My experience is that they will generally become brittle and break away after a few years, and finally be lost. The dentine seems to lack those properties which we find later in life which render it strong and enduring after the death of the pulp. Then the probabilities are that they cannot be permanently retained. Then shall they be extracted at once? Before this question is decided the entire mouth and face should be closely examined, if we would do the best thing possible for our patient. Is it *one* of the first molars in this condition, or is it a majority of them?

We will first suppose it is but one that has lost or must lose its pulp. All the others, if decayed, can be treated with a reasonable probability of saving their pulps in a healthy condition and consequently of retaining the teeth permanently. The other teeth promise well while the development of the features is regular and symmetrical. Now if we treat and fill this tooth, the probabilities are that it will begin to break away after a few years, become a source of trouble, and be finally lost. If we extract it, the probabilities are that more or less distortion of the features will result from its loss. The space of the lost member will be filled up by the loaning in toward it of the remaining teeth; and in this way the anterior teeth will be carried to one side of the mediary line, forever marring their appearance, more or less, every time the lips are parted,—robbing a pleasant word or smile of much of its wonted charms. The lips and wing of the nose are also in some degree carried with the teeth. The longer this tooth is retained the less the distortion. We therefore unhesitatingly say, retain the tooth, if possible, until the anterior teeth have become firmly fixed in their position. It must also be remembered that it is one office of the sixth-year molars to hold the jaws in position while the temporary teeth are being shed and the permanent teeth are taking their place. They are four large and strong teeth, taking their places just in such position as to antagonize with each other and receive the strain of the powerful masseter and temporal muscles. Now if we remove one of these teeth any considerable time before the other permanent teeth have taken their places, the probabilities are that the continued strain of these powerful muscles being unmet by the usual and proper resistance, will bend that side of the inferior maxilla or draw it out of its proper position more or less, at a time of life when this bone is in an active stage of growth, producing an irregularity and deformity of the features which will be retained in after-life.

If we remove the case to the lower jaw and suppose it to be one of the lower molars that must loose its pulp, the probabilities of distortion of the features from the effects of the muscles are the same, while the same results will be seen in the lower incisors as we have pointed out in the upper; the case therefore requires the same consideration and treatment.

Now let us suppose that all, or a majority of the sixth-year molars, must lose their pulps. If we remove them there is no particular danger of distortion from side to side, Yet here again we must study the probable effects of their removal, for all these spaces will fill up largely at the expense of the prominence of the mouth. Will the dental arch probably be so prominent as to suffer the loss from shortening without marring the features, or will it lack prominence at best and the shortening of the arch from the loss of the molars seriously near the features in after-life; or again, is the arch inclined to be prominent? Upon the determination of these questions we should base our treatment. If it is decided that the arch should be kept as full as possible the teeth should be retained until the anterior teeth have become fixed in their positions. If the arch will probably be too prominent, extraction will be indicated. In case of the loss of the pulps in both the first molars of the upper jaw, their extraction or retention should be determined by the probable comparative fullness of the two jaws. If the upper teeth will probably be too prominent, extract them; if the reverse, they should certainly be retained and receive our best care; this applies with equal force to the lower jaw.

What we have said of the first molars as to distortion from side to side applies with some force to the bicuspids when these are lost very early, but in a far less degree to the second molars; their loss has but little effect upon the position of the anterior teeth or the features. The anterior teeth that lose their pulps early, although liable to break away after a while, should always receive the best care we are able to bestow upon them. Very much may be done for young patients by searching out and correcting those conditions which point to probable decay of the permanent teeth, especially during the time of the shedding of the temporary teeth. Very many indications point to this as the time at which the foundation of many of the decays of after-life is laid. This arises in the main from the irritation of the mucous membrane about the temporary and coming permanent teeth and the consequent vitiation of the secretions by acid exudations from them, not unfrequently producing intense acidity, which excoriates and roughens the enamel upon the teeth that are taking their places, often forming cavities in a very short time, or on the other hand rendering them far more liable to be attacked in the future. Much close observation has led me to conclude that the fact that the first molars are in their places throughout the process of shedding and replacement is the principal cause of their being so much more often attacked early than the other teeth. Indeed, we believe that if the first molars can pass through the time of shedding and replacement without blemish, the probabilities as to their resistance of decay is fully as good, if not better, than any other teeth; owing probably to the fact that their situation calls them into more active and continued service in mastication. All irritations about the shedding or coming teeth, especially those that assume a low chronic form, may be regarded as probable cause of future decay among the adjacent teeth and should receive our careful attention. Its cause should be searched out and removed. As a convenient point from which to study the effects of irritation in producing decay, we would cite the profession to the wisdom teeth and ask that they take special notice of them. It will generally be found that those that come through the gums with little or no irritation resist decay about as well as any other teeth, especially if brought into active use in mastication; while those about which there is long-continued irritation are most generally attacked almost as soon as they have taken their places. Simply severe inflammation, ending in separations about the tooth and then ceasing, has no injurious effect. In all cases of filling teeth the object is, or should be, future benefit. The probable results then, of these operations, should be the basis upon which our decision as to its advisability should be founded. In most cases, perhaps, this decision will be based upon the examination of the particular tooth upon which we propose to operate, and will depend upon the extent of the decay and the condition of its pulp and membranes. Yet in very many eases considerations of other parts must not be disregarded. The condition of the mucous membrane of the mouth may be such as to render the filling of any cavity, for the present at least, unadvisable. The same is true of all sorts of nervous affections or other pathological conditions that induce hyperæsthetic conditions of the system at large of the mucous membranes or of the teeth especially. Much experience and close observation has led me to conclude that fillings made when such conditions exist will not be so successful as they would prove if these conditions had been suffered to pass away, or had been terminated before the operation. In any and all these conditions the pulps and investing membranes of the teeth upon which we operate are more liable to take on diseased action after being operated upon, and there is much increased pain and inconvenience in the proper performance of the operation, all of which tends to lessen the probabilities as to good results. Aside from surrounding pathological conditions there are many considerations in regard to the time and circumstances of the decay that demand our attention. I am persuaded that many of us fill too many cavities; that is, we often fill cavities that probably would never injure the tooth if the operation was indefinitely postponed. On the other hand, many cavities are often left much too long without filling. To judge wisely of the probabilities of decay, its progress or non-progress in particular cases, requires much close and patient observation; and I am persuaded that it is a subject too much neglected by the mass of the profession. It seems to be the habit of many, if not most of us to fill every cavity we meet with, no matter what its size or condition. Not only that, but to cut out every spot and substitute a filling without consulting our previous observations and endeavoring to form some opinion as to the probable future of the case if left to itself, or as to whether the operation will be of royal advantage in the future. This is not as it should be, and I would urge every practitioner to make some specialty of the study of the probabilities of decay, and endeavor to establish some definite idea of the rate of progress of the various phases of decay in various conditions of the patient as they come under your observations, with the end in view of lessening the number of fillings and the discomfort of your patients without materially lessening the probabilities of good results. Very many cavities are daily met with in the teeth of patients of regular habits, the filling of which may be postponed from time to time with the simple injunction that they need watching, and the progress of the decay watched and studied without any probable danger to the welfare of the teeth; and in very many of these cases it will be found that an operation is entirely unnecessary, and that the teeth are really in better condition without the filling than they would probably have been with it,—for we believe that it is generally conceded that very small fillings are the most unreliable. I cannot here attempt to point out those classes of decay that progress rapidly, slowly, or remain stationery. That subject was treated in my paper before this Society, 1873. I must, however, say a few words in regard to buccal cavities. Farther study of these cavities and their cause has added much to confirm the views given two years ago, viz: that they are very generally caused by a peculiar irritation of the mucous membrane adjacent, and the consequent vitiation of the mucous, which is of a temporary character, though liable to frequent recurrence, but capable of being very generally controlled by friction regularly applied. In these cavities the probabilities of benefit from fillings made after its cessation or removal, are very different —the advantage being with the latter. My advice is to break away the margins of the cavities, opening them wide and institute treatment, except in cavities with exposed pulps, or those liable to become so, which should be excavated and filled temporarily. As these cavities are uniformly very sensitive when the cause of decay is in active progress and much less so after its cessation, the comfort of our patient demands our best endeavors in this direction. We have done very little of what we had in mind to do when we undertook to write this paper, The probable effects of this or that line of treatment, followed out in detail, would require an extensive work. But if by drawing your attention to this line of thought, we shall have induced any of you to make probable results and effects more of a study in the future than you have done in the past, we will have accomplished our aim.

ARTICLE II.

Mechanical Dentistry.

BY O. WILLSON, AURORA, ILL.

Read before the Illinois State Dental Society.

In offering for your considerations some suggestions relative to Mechanical Dentistry, the fact seems to gather new force that it is quite possible for us, as a profession, to carry with our services a too sanguine idea of permanence. It may be we do not talk sufficiently to our patients. The tooth filled with metal is not only as good as a sound tooth in the same mouth, which is the more reasonable expectation, but the repaired surface is *insured from further destruction.* Whereas, a close canvass of the case in point would, like the risks of express and insurance companies, surround it with several "conditions."

The plate of artificial teeth adapted after the lapse of eight or ten months from removal of the roots is termed *permanent*, and so there comes about a belief that the work is good for all time—hence the idea of warranting, practiced by the more unskillful or unscrupulous.

The "temporary plate," is so named from diminishing size of alveolar border, immediately after extraction of the teeth—how few there are of any other than temporary plates. The breaking-down of process, of course is most rapid during the first weeks subsequent to extraction, but it is, especially under non-conducting plates, the beginning generally of a *ceaseless* reduction. Pertinent, is the recent inquiry of one of this Society. "What may our patients reasonably expect of us?"

Of late years, particularly since the introduction of rubber as a base for artificial dentines, mechanical and operative dentistry have exhibited a growing tendency to separate. This has been eminently noticed. Dr. Eames, you recollect says in the March number of the *Missouri Dental Journal*, for 1874: "The maker of artificial teeth will one day occupy the same relation to the dentist that the manufacturer of wooden legs does to the surgeon." This remark, you notice is prefaced with a truthful picture of the present gloomy status of mechanical dentistry, and that the prospective operator or laboratory-workman should have, if desired, a separate course of study in college and different degree. Very many of our profession entertain a similar opinion.

This disintegration tendency has probably escaped the notice of but few of you; the cause may be less apparent, and given a *remedy*, some shall *yet* counsel *divorce*,—but whether it is to be in school, or office, or in both; the interest of all demands an earnest inquiry into the elements of this "low ebb" in mechanical dentistry, that, if possible it may be remedied. Prominent among these is: too great expectations of the cheap bases as yet offered.

These "expectations," on the part of the community have, upon our own as upon other professions, a preponderating influence; and are, if we mistake not—(1) for the best of professional services; (2) at a compensation within the the means of the greater number.

The exceptions to this general proposition are mainly but a difference in degree of reflection upon the subject, for the community being but the archetype of the individual, we need but ask ourselves our own desire in this direction; and the sum-total of its good judgment is commonly not far to the rear of the real merit of our performances. Measured by this standard, how far have these expectations been realized? Let us pass in rapid review the bases and teeth now in use with reference to their merits and defects.

Of the metals (if we except platina with the porcelain combination—continuous gum work) gold is the best, for either partial or full sets; for the former, it is without a peer. By reason of being readily tarnished, silver plates are largely in disfavor. Aluminum is practicable only for full sets, and will not resist the corrosive agents of some mouths. Other metals, as Ingersoll's American platinum, Wetson's metal, cheoplasty, block-tin, &c., are used with varying success. For full sets, the celluloid combination with these metals, using plain teeth, commonly gives the best satisfaction possible to them, and if the whole plate be made of celluloid or rubber, this use of plain instead of gum teeth, gives stronger work, since the material on the outer part of the *circle* is continuous; but using gum teeth divides this into segments. A substitute for the celluloid combination with metal plates is, except on silver, the English pink rubber, bleached; but since it is wanting in requisite strength, the less is used the better, confining it to parts in sight.

In cases of great prominence of upper jaw, plain teeth adjusted directly to the membrane, with a slight rim about the tips of teeth to strenghen this frail attachment, gives a very natural appearance sometimes. By keeping pledgets of cotton in the alveoli of the front of the mouth, to keep them open a few days, plain teeth may pass the plate into these holes.

But, inasmuch as neither the celluloid nor pink-rubber is translucent, together with the incidental fact that this color even cannot be relied on for permanence, their appearance is very objectionable. If gum teeth be used, and in sections of three and two, as you well know with the desired position of one, all must go; and the fewer the teeth in sections, the more of those uninviting seams between them.

While speaking upon the demerits of teeth coming *complete*, in make, to the hands of the dentist, although this is claimed, by some, to belong to the work of the operator, allow a word upon pivot teeth. But for the one fear of alveolar abscess following the insertion of pivot teeth, there wonld be nothing comparable with the plate-tooth gold-pivot and filling attachment for substituting the ten front teeth; and the "coming dentist" is he who can so renovate and prepare nerve canals for this purpose as to insure us comparative immunity from this threatening ill, so that we may more confidently undertake this most meritorious work.

Almost any of these metals are preferable to celluloid, rubber, gutta-percha and the like, for one important reason —they are conductors. A substance may promptly respond to thermal changes, and not be a conductor of electricity. It may not conduct either heat (and cold,) or electricity, and yet permit electrical induction;—indeed, there is no substance with which we are acquainted that can prevent or intercept its influence. These last named substances are non-conductors of both, and thus preventing the thermal changes to which the membrane covered by them is accustomed, they prevent vascular action; and the ignorant or henious practice, as the case may have been, that counseled patients to exchange their gold for rubber plates, has been an incalculable injury to the human face, to say nothing of the balance of the body, and is the entering wedge of this *divorce*. A *genuine* artist will not long cleave to the brush, paint and canvass, that belie his talent.

Nor can the adept at laboratory work be long contented with the exclusive use of materials of like tendencies,— nothing short of financial anxiety can confine him to it,— hence this branch of dentistry is, for the most part, conducted by another class, the manipulation of these bases, requiring but a medium of skill, and permitting the exercise of about the same amount of artistic taste. These non-conducting bases have *one* virtue, they are cheap and in this respect have held undisputed sway until now; and, catering to this axiomatic duty of all, to consult their purse, we have passed the limit of wise expenditure, and mechanical dentistry is to-day paying the penalty.

A lamentable result of the use of rubber is, that under it the alveolar process recedes so rapidly, as to make frequent demands for a better adaptation of the plate to the jaw, and thus the patient continually feels the necessity of the low price and "*quick returns.*" The business is *reactionary* "grows by what it feeds upon." Nor are we to look to celluloid for *deliverance* from this untoward condition. It is stronger than rubber, and for most cases has better color; it hugs teeth closer, and upon it *is no royalty.* Otherwise, it is open to the same objections as rubber, unless time may demonstrate its freedom from poisonous effects; and neither celluloid nor rubber will endure the verdict of an enlightened practice, but will continue the work of depression and disintegration.

A destructible material, used simply in combination with a base susceptible to changes of temperature, is bad enough but it is much worse to form the whole of the plate of it, particularly if its ingredients are detrimental to the health of the wearer. Few have not noticed the gradual waste of rubber plates, along the labial and buccal border, in some mouths,—the exceeding tenacity of oral debris for this base, over that of metal, or porcelain, the odor of which is as intolerable as that from behind teeth soddered to the plate, golden rims, or that from deep-seated dental caries. If any be still incredulous, remove teeth from rubber plates and notice the odor behind them.

In accordance with established laws of the animal economy, immediately subsequent to extraction, the arterial supply to the capillaries is more abundant, which commence the deposit of plasma at the bottom of the alveolus, while the alveolar process above this terminal deposit is carried off by the absorbents, after the active inflammatory stage, it having served the purpose for which it was designed. The point at which this broken-down process, and the blastematic deposit meet, or the natural equilibrium of waste and supply is restored, is at the usual location of muscular attachment, but by reason of constitutional disturbance of this equilibrium,—the non-conducting and poisonous property of plates, by separation of particles, pressure, or all combined—the alveolar ridge, especially in scrofulous habits diminishes in size, as you doubtless have noticed, until where there was a ridge on the under jaw, there is practically a groove, and upon the superior maxillary the palatal bones are as prominent as the border, particularly if deep air-chambers, so-called, have been made in the plates. This reduction, *morbid* of course, it will be remembered, is effected either by insufficient capillary nutrition, from defective arterial supply, of quantity or quality, while the degree of absorption is unchanged from the natural; or where the absorbent vessels are excessively *active*, the condition of deposit remaining unaltered from the state of health, this being the condition noticeable under non-conducting bases, though any plate, by continuous irritation from unsteadiness in position or otherwise, will induce it.

A metal or porcelain plate, inserted early after extraction, and well fitted to the uneven prominences, keeps them bearing nearly the same relation to each other, and thus helps to prevent movement of the plate ; and the acme of excellence in the adaptation is, for all atmospheric plates, where the pressure is *least* consistent with comfort to the wearer. Pressure, gradual and persistent, as even by good fitting plates in general, is a matter of regret, perverting to some extent vascular action, and as atmosphere is excluded, over-stimulating the absorbent vessels, and so we see even under bases compatible with membranous function, more or less reduction in size. Now add to this necessary evil the unnecessary one—a base incapable of responding to thermal changes, convicted repeatedly of poisoning, and we have a low grade of chronic inflammation from irritation, chemical and mechanical, that keeps the absorbents preternaturally active; and this reduction is co-extensive with the irritation. Such a base is worse than a *bread and milk poultice*, long continued.

Two other styles of work deserve prominent mention—continuous gum and porcelain; either of which seem adequate to meet the expectations of comfort and cultivated art, though neither are adapted to forming partial sets, unless the teeth are contiguous to each other. Both require a cultivation of skill to manipulate them successfully, seldom met with in these degenerate days of " Josiah's" reign ; both are immeasurably superior to any other, and strange to say, neither are in general use throughout the country. So far as we are acquainted with the work of both, we give our unqualified preference to porcelain. The general appearance of each in the mouth is the same; each requires nearly the same time to manufacture it, but the porcelain has the advantage of a little less cost. It is much lighter, and the adaptation to the mouth can be made perfectly satisfactory. It is stronger, because the teeth contain no pins to expand or cut the tooth in twain, and because the teeth coming in biscuit form, enables the use of body, containing less of the glass of borax, so that the heat may be run up far higher than in making continuous gum-work, and thus is made the strongest of porcelain. We *believe* that a good piece of this work cannot be fairly broken in the mouth. Continuous gum work depends upon the platinum for strength, and this must be so braced that it will not spring, which adds greatly to the weight. This work being of the *enameled* teeth, the gum and body must contain a considerable flux, which weakness the investment, and it checks, if the plate yields.

Porcelain plates, though invented about twenty-five years since, by Loomis, of Washington, D. C., seem until recently to have been wanting in strength, and until the improvements of Dr. Dunn, some ten or twelve years since, were rather undesirable. The teeth were carved from the plate, instead of being moulded from the natural ones, as now. The color of plate and teeth were the same, making the general appearance quite defective and inartistic. The manipulation throughout is now so much improved, as to be almost another method. A model is obtained in the usual way, upon which is perfectly fitted a wax plate, with length and fullness of required teeth, with simply the prints of teeth for articulation. An articulator of plaster is now made, for fitting the plate after it comes from the furnace, also a cast from this wax extending back of the wax about an inch. The model is now trimmed, allowing for shrinkage of the biscuit; then cut out the wax in the lingual surface, refill with sheet wax, of the desired thickness for plate, which by filling with plaster, makes the whole ready for setting up the teeth. The process of baking, is analagous to that of continuous gum.

Such, gentlemen, we conceive to be an unbiased synopsis of the merits and demerits of the plates and teeth now of the Dental Laboratory. If it be an intelligent statement, then it is a fact, that gold for partial plates, and porcelain or continuous gum work for full sets of teeth, are the only bases really desirable, for the reasons that they are the only ones at once cleanly, healthy, and naturally artistic,—challenging the verdict of cultivated criticism. There construction is not of the mushroom order of attainment. It *does* require *unusual* intelligence and skill to handle these styles of plate-work efficiently; *unlimiting* genius, almost. How many of our laboratories turn out this kind of work? Do we exagerate when we say that not one in 500 of all plates made during the last ten years, have been even a *semblance* of the *best of professional service* in mechanical dentistry. Why any wonder then, that this branch of our profession is a by-word and contempt, almost wanting in mechanical and artistic skill. How few talented young men now propose to enter it; and shall it continue such, or is there for it a resurrection; and if so, how shall it be? by giving it a back seat in school, or office, or shall it be by honoring it in *both*, as its importance demands? also by individual and collective effort to inform first ourselves, and then our patients, as to their best interests in this direction using arguments similar to those we employ in the operating department. It is in vain that we attempt to ignore its claims; they are parallel with those of operative dentistry. So long as teeth decay, so long will somebody fail to care for them successfully; and so long as pride and good sense endure, so long will there be a demand "in the upper stories" for good mechanical dentists; and to lower the standard of excellence in education or skill, or to encourage our best talent to shun this branch of our profession, will but enhance the evils we seek to avert.

Whoever has been in the practice of dentistry a sufficient time to give to his best efforts a fair trial, must have often passed in astonishment, not only at his many failures, but the varied and extended field of investigation suggested by it; and fortunate indeed is he whom the revelation was not so astounding as to drive into discouraged apathy.

The blending of art, surgery and mechanics in our specialty, is so intimate that the point of divergence is often difficult of discernment. Thus in addition to the ordinary work of constructing and applying artificial dentures, the mechanical dentist is often called upon to insert pivot teeth, make appliances for changing the position of natural ones, construct and apply palatal obturators, and not infrequently to devise splints for maxillary fractures, and sometimes to restore lost portions of the face; also to suggest and use means of reducing luxation, congenital and accidental. Surely, here is need of scholarly attainment, and when to the knowledge thus suggested, that of the minerals is necessarily added, we do not consent to mechanical dentistry in its best estate, as being the inferior of any calling. But if A. can only manufacture an article that B., C., or D. can, without especial effort, then is it subject to the competitions of ordinary *trades*.

Mechanical dentists should have as thorough training as operators, if indeed the course of study be not identical, which is very necessary, in case of separate and independent offices for these two branches; but where they are practiced in the same office, it is possible to be fairly successful, if the laboratory man is wanting in a knowledge of some things, that in an operator would be empericism. This, however, necessitates the latter to consult with every patient. Each *should be capable* of giving good counsel, for either plate-work, &c., or operating. Their relation is more intimate than surgery and wooden legs.

In our own office we connect the extracting, with the work of the laboratory; and after trying this plan for eleven years, feel sure it is the better way.

Dr. Swain, in a paper presented to this Society in 1872, remarked that he who had cared for the teeth of a family or individuals, for years, is or should be, the best judge of replacing them. Who that observes, can fail to concur in this statement. But since it is more convenient to divide the work, the evident necessity is still to keep the two branches in the same office, thus uniting talent, for though "like peevish man and wife together jar—they yet are both to part."

The rejuvenation of mechanical dentistry rests in the realm of exalted skill, and a cultivated public opinion; though the *price* of that skill, must necessarily be as variable as the location of its exhibition. That which is a fair remuneration in one place, would be exorbitant in another; while yet, it may be true, that skill is not subject to the fluctuations of ordinary merchandise.

For this education of the masses, we must wait,—never forgetting that 'tis we ourselves who should and do, to a great extent, mold public opinion upon our services. Hence the necessity of thorough preparation for our work; and as we are enabled to offer an article *in every way commendable*, at a reachable figure, so will the incompetent of the laboratory seek other avenues of employment, and mechanical dentistry be lifted by degrees, from this "slough of despond" towards which it now gravitates, up to a position of artistic taste and enduring utility, that shall rank quite favorably with her twin-sister, the operative department.

SELECTED ARTICLES.

ARTICLE III.

The American Dental Association—Fifteenth Annual Session.

FIRST DAY—*Morning Session.*

The fifteenth annual session of the American Dental Association convened at Grant's Hall, Niagara Falls, on Tuesday, August 3d, 1875; the president, Dr. M. S. Dean, of Chicago, in the chair.

The usual routine business of roll call and reading of minutes being disposed of, and a partial report of the Committee on Credentials having been made, miscellaneous business was taken up, and several proposed amendments to the constitution, resolutions, etc., lying over from last year, were acted upon.

The first of these, an amendment proposed by Dr. Shepard, giving the Executive Committee the power to change the place of meeting for good reasons, was, after discussion withdrawn by the mover.

Two others, proposed by Dr. Cushing,—the first making a change in the manner of appointing a Committee of Arrangements, providing for their appointment by the President, instead of being a division of the Executive Committee, —were taken up and passed.

An amendment by Dr. Stockton, providing for a change in the manner of electing officers, was laid on the table.

An amendment proposed by Dr. Allport was then taken up, which read as follows:

This association will hereafter receive no delegate who shall, after this date, enter the profession without first having graduated at some reputable dental or medical college.

This proposition gave rise to considerable discussion. Dr. Atkinson and others thought it signified a tendency toward exclusiveness, while Drs. Rehwinkel, Morgan, and others thought it did not go far enough , and Dr. Morgan proposed a substitute, which provided that no delegate should hereafter be received who did not hold a diploma, thus going further than the original amendment, which only applied to those who might *hereafter enter* the profession.

Dr. Morgan subsequentlly, by consent, withdrew the substitute, and the original amendment was then put and carried.

[Local societies sending delegates to the American Dental Association will therefore bear in mind that no person coming into the profession after this date can be received as a delegate unless he be a graduate in medicine or dentistry.]

An amendment, offered by Dr. McQuillen, changing the number requisite for a quorum from fifteen to twenty-five, was lost.

Some resolutions on the subject of "Dental Education," lying over from last year, were then taken up.

One, offered by Dr. Bogue, as follows:

Resolved, That it is the sense of this association that no dental student should be graduated from any dental college without at least three years' instruction; the latter should in no case embrace less than two full courses, was, after discussion adopted.

Another, by the same person, suggesting a common committee, to be appointed by the colleges, but disconnected with any of them, for the purpose of examining candidates for graduation and deciding upon the same, was voted down as impracticable.

A resolution on the same subject, offered by Dr. Judd, was taken up and adopted, as follows:

Resolved, That this association recommends to all local societies the adoption of rules prohibiting their members from taken students for a less period than three years, or for such time as will complete a three years' pupilage.

An invitation to visit certain objects of interest was accepted.

A resolution extending to Dr. Wilson, of Cuba, and any others who might be present from foreign countries, the privilege of the floor, was adopted.

After some further routine business, reports of committees were taken up; but those called not being ready, the meeting adjourned till 7.30 P. M.

Evening Session.

The association was called to order at 7.45, by the Presdent.

The subject of "Physiology" was in order; but the chairman of the committee not being present, it was moved by Dr. H. A. Smith, and carried, that Dr. John Allen be invited to read a volunteer essay upon the subject.

Dr. Allen's paper was upon the subject of physiology as applied to the occupation and health of the dentist.

He alluded to the fact that the duties of the dentist were increased in proportion to the degree of eminence we have attained. No profession more severely taxes the mind, brain, and nervous system than our own, and one hour of the required tension often tells upon the dentists more than would a day of ordinary toil. The temperament of patients often exhausts his vital forces rapidly.

Now, it is important to consider how we may prevent a premature exhaustion of the vital forces. Narcotics, stimulants, exercise, have been restorted to. The more careful we are to observe the fixed laws of nature the more we receive strength.

The human body with its numerous organs and tissues is built up, atom by atom, from fourteen nutrient substances, derived from the food, They are divided into four classes, viz., proteids, fats, amyloids, and minerals. Men introduces other substances which are non-nutrient and detrimental. These are narcotics,-tobacco, alcohol, and opium. They are poisous, but have their places, judiciously used, as medicines; but in larger doses produce narcosis, coma, and death. When only the proper materials in due proportion are introduced into the system, the equipoise of waste and supply is maintained; but narcotics and stimulants do not restore the vital forces. To what is the peculiar fatality in our ranks owing? Is it to the exhaustive nature of our labors, or a course of habits involving the use of these articles? or is it the want of daily excercise in the open air?

We recommend that this subject be brought before the State and local societies, and to place the matter in a tangible shape, the paper closed by the introduction of the following resolution:

Resolved, That a committee of three be appointed, whose duty it shall be to collect facts with reference to the subject matter here presented, and also the best means of preserving the physical and mental capacity of dental practitioners.

The resolution was put to vote and carried.

[The Chair subsequently appointed as the committees provided for by this resolution Drs. John Allen, W. H. Morgan, and W. E. Magill.]

Dr. McQuillen, chairman of the committee, then read a report on "Sleep, Dreams, and Anæsthesia."

The subject being open for discussion, Dr. Atkinson said that he rejoiced that we were apparently approaching a solution of principles. All that we have had has been description of condition. Sleep has not been defined. It has been assumed that we know what it is. Without a definition of it we can arrive at no profitable conclusion as to the difference between sleep and anæsthesia. Can I point out the difference between sleeping and waking? If I should say that it was simply polarization and depolarization, how many would understand me? We are dealing with something not quite so tangible as a stone fence when we treat of a subject like sleep.

There is resident within the organism a demand for a sufficient quantum of power to operate the functions of the body; so long as that demand is supplied and has a credit account in the bank, we are waking. In the practice of medicine he has known no sleep for weeks as generally understood, and has slept in the saddle; is subject to neuralgia, and must have a plus quantity of force in his system not to feel constant pain. These details are difficult to explain to those not familiar with the generation of the elements of tissues. Chemistry is a mere mazo of scapegoats to enable us to appear learned when we are the merest blanks. The alphabetical nomination of modes of motions is the only method of ascertaining what physiology is. We must have perception before we can formulate. If we say that sleep and anæsthesia are caused by congestion of the blood-vessels, we show dense ignorance, since we attempt to pronounce definitely upon what we have only insufficient means of determining. *Anæsthesia is death*, in the ratio of its manifestations.

What are poisons? Agents said to act on nerve-centers! The first nerve-center is only a bleb of nervous mass. A human being is only a protoplasm. Oxygen is not a supporter of combustion till set free, and we all know it is then.

Is anæsthesia sleep? A kind of sleep. What is the difference between sleep and death? One is a depolarization forever; the other is only temporary, and is not so in relation to breathing. If we slept all over at once we would die all over at the same time. How does the heart get along? Does it sleep? and do the lungs sleep?

Dr. McQuillen. The theory that the blood-corpuscle consists of a vesicle or cell wall with fluid contents, as stated by the preceding speaker, has long since been abandoned by the majority of histologists. It is now generally regarded as a soft-solid substance. The heart and lungs do sleep, rest or recuperate. They sleep in the regularly recurring intervals between the beatings and the respirations. Place the ear over the chest, and two sounds made by the heart will be heard—a long, dull sound, and a short, quick sound, followed by an interval of repose. The heart rests or sleeps six hours out of the twenty-four. If it be assumed with Dr. Snow, that anæsthetics do not act directly upon the nerve-centers as a poison, but that anæsthesia is due to privity of oxygen, it must follow that the inebriate reeling through the streets is not drunk, but is only suffering from privity of oxygen. Shall it be said that sleep is caused by privity of oxygen? Why, during the waking period the quantity of oxygen consumed in the act of respiration is far in excess of that used during sleep. It is difficult to define what sleep is. The brain fails to comprehend and language fails to express these subtle physiological principles. We can only describe phenomena; their causes often lie too deep for the mind to grasp. Physiologists discover, as did Columbus sailing into unknown seas. Scientists working in new fields are liable to make mistakes.—but blunders sometimes lead to success, though often not in the direction intended.

Dr. Atkinson. It *is* privity of oxygen, and nothing else, which makes these men drunk. Don't let us call things by the wrong names. NO is almost always NO^2, and whatever amount of this may be inhaled satisfies the affinity of the blood-corpuscles for oxygen. Even when in cylinders the very purest that can be made, it contains NO^2, and do not let us be fooled into believing anything else. When it comes into contact with a blood-corpuscle it is satisfied, and then there is effete matter. This is the foundation of many diseases, such as tubercle, etc.

Dr. Magill. The practical questions to be drawn from these papers are: What induces, insomnia? Is it mental excitement, or the tension under which we labor? We are all conscious of exhaustion, and Dr. Allen opens a practical view of the subject. We should seek the remedy in relief from excitement. We should discuss whether sleep is the withdrawal of blood from the brain; if so, a remedy which has been suggested for insomnia, namely, eating to induce a flow of blood to the stomach, and consequent withdrawal of it from the brain, may be founded in reason. We suffer from extreme exhaustion, and anything which will bring us to understand the causes of, and so prevent our trouble, will be better than any remedy.

Prof. Flagg. Practical results are what we want; unless something practical can be drawn from these papers and discussions, no tangible result will be reached. Sleep is an extended subject, and the speaker had done a great deal of it in his time, and expects to do more, and feels competent to discuss it. (Laughter.) In that part of his remarks which I could understand, Dr. Atkinson seems to have struck near the mark, and it is natural for me to infer that the still larger portion that I could not understand was still sounder. (Laughter.)

Sleep is the desire on the part of the organism for further life. As it is deep and strong it is recuperative; as it is recuperative; as it is short, slight, and disturbed, it is dissatisfying, it is our duty to recognize that we become exhausted mentally, physically, and, we may almost say, *morally;* we ought to go to bed early and sleep enough. Don't get upearly and work till night over the chair, and then go into the laboratory till midnight, and then go to reading up. The speaker had become entirely prostrated by hard work and reduced to one hundred and twenty pounds; he had changed his mode of life, living eight miles from his office, and never going near it on Saturdays, (thus doubly fulfilling the Biblical injunction, which only commands one day's rest,) and by this change, and eating the best food he could get, and sleeping eight hours every night, had increased his weight to one hundred and sixty pounds.

Anæsthesia is death? Because it does not prove fatal every time, do not let us think that it is not harmful. It sows disease; it produces a condition favorable to such diseases as chorea and other nervous affections, which will unfit for business, society, or any of the active duties of life. The asylums are full of cases of these diseases. The victims will tell you that from the time of taking ether they began to have their symptoms; first a little irritation of the muscles of the throat, then barking, and then twitching Men are innocently (rather than ignorantly) swung down to the jaws of death and back again. We have to do it, but it is little less than death. The patient is never the same after. He knows of what he speaks, for he has administered anæsthetics from three to five times a day for twenty years, and every time he did it he trembled for the patient under his care. The effect on himself was fearful—insomnia, nervous irritability, etc.—until he abandoned it.

Prof. Taft wishes to emphasize the expressions of Prof. Flagg. It is an important subject and a serious question. A large number of the profession are in the constant habit of using anæsthetics; many use mostly nitrous oxide. If the influence specified is liable to occur to the patient, how must it be with the operator who is constantly administering it? Prof. Flagg tells his own story; the speaker knows of instances where the health of operators has been injured. This accounts for the cases of insanity. The exhausting nature of the work does not all depend on prolonged effort but is largely due to incompatibility between operator and patient. One individual will exhaust the strength more in an hour than another will in a day. The strength and mental energy are taken away in such cases, but in others they are apparently increased. He refuses to operate for some patients on that ground alone.

Dr. Rehwinkel bears testimony to the truth of the statements of Profs. Taft and Flagg. He formerly served a term in the penitentiary (laughter,) and while there looked upon chloroform as harmless as water. It was in 1847 and 1848, and the Government had given orders that the new agent should be thoroughly tested. The anatomical students were in want of material, and it was hinted that no responsibility would be incurred in case of accident. The consequence was that not a hair was pulled out with chloroform; cases were hunted up among the convicts, who were ready to submit, it being a pleasing variety to them. He had come very near expediting many patients to the happy land. The more he used the agent the more he became afraid of it, and for the last ten years had only consented to use it in cases where the chances of life and death were evenly balanced. He spoke of a singular case in Germany: A gentleman of a poetic nature having read of the stimulating and exhilarating effects of ether, procured a bottle, and putting himself under its influence, experienced results similar to those arising from hasheesh-eating; he continued its use, but did not find a recurrence of his delightful visions. He became, however, a confirmed ether-taker, consuming as much as two pounds a day: he expended his means to procure ether, and when he had no more he became the terror of druggists. He would buy it or beg it, and would have stolen it if he dared. He was finally admitted to a hospital, and a test made to see how much it would take to place him under the influence of ether; with an improved inhaler, which allowed no air to enter, six and three-quarter ounces were consumed before he was partially etherized! Adjourned.

TO BE CONTINUED.

ARTICLE IV.

A Few Facts from Salter.

BY J. EDW. LINE, D. D. S., ROCHESTER, N. Y.

Read at the Seventh Annual Meeting of the District Dental Society of the Seventh Judicial District of the State of N. Y., held at Rochester, N. Y., June 1st and 2d, 1875.

The author from whom we propose to draw a few facts, though well known in England, is known in this country only to those who follow, with tolerable closeness, the literature of dentistry—especially that of an imported character. If any one thing more than another served to bring his name before the dental profession, it was his war with the elder Tomes and others, on the nature of the contents of the dentinal tubuli. In this war he came off second best; but the discussion, so ably carried on by all the parties concerned, proved unexpectedly rich in fruit; for it grounded old facts on a basis firmer than before, and brought to light many other facts that might otherwise have remained unknown.

Early initiated into and made acquainted with surgery in its most comprehensive form, our author was well qualified to enter upon the practice of that specialized phase of it that we, rather pretentiously it must be said, claim to follow. For twenty-three years he has applied himself closely to dental surgery, and, as a partial result of such application, has given us a book that well merits the title—Dental Pathology and Surgery. When we add to the fact of long term of service, that he is a member of the Royal College of Surgeons, dental examiner to that institution, dental surgeon to Guy's Hospital, and that his microscope and notebook are always at his elbow, we have good reason to believe that what he has given us is the faithful record of careful maunal and intelligent mental labor.

We will first call attention to his remarks on *Secondary Dentine.* This term he regards as generic; its subdivisions —*Dentine of Repair*, *Dentine Excresence, and Osteo Dentine*—as specific. The generic term he considers "applicable to all the after-formations of dentine by which the pulp cavity is diminished or obliterated, subsequent to the tooth having attained a mature and adult condition."

1. *Dentine of Repair* is a division of our subject that has received more or less attention from Hunter down to writers of the present day; but all of these, some of the most recent observers included, "even with the assistance of the microscope, have not described many interesting points concerning its anatomy."

We are informed that "to understand the laws which are followed in the formation of dentine of repair, it is necessary to examine sections of teeth variously worn and variously broken. Sections should be made carefully, so as to cut the dentine parallel with the radius from the centre of the pulp cavity to the point of injury, and not obliquely or on one side. The injury and the corresponding point in the pulp cavity should be disclosed at once. A very slight magnifying power, from ten to twenty diameters, will suffice to exhibit the general arrangement."

Dentine of Repair follows or attends—

1st. *Abrasion of the surface.*

2d. *Encroachment of caries.*

3d. *Fractures that do not involve the cavity.*

1st. Experience proves that "teeth which are partially worn at the summit of their cusp, or cusps, and are likewise grooved at the neck, when cut vertically and so mounted are the most illustratize" of *abrasion of the surface.*

A canine tooth, the cusp of which has been removed by friction or by "attrition of mastication," will serve as an illustration. The enamel is wholly worn off; the dentine is in the same condition to the extent of—say an area that includes from ten to fifteen dentinal tubuli; "a large mass of tissue intervences between the wear and the repair, but yet the latter (in the state of a triangular mass of secondary dentine in the summit of the pulp cavity) has appeared, and in proportion to the former. Wear * * * has no relation to the structure of the dentine * * * but the consequent repair has a direct relation to its intimate anatomy. Now, of the tubes that abut upon the worn surface, the central would correspond to those most worn down; those which in the entire tooth had reached the extreme point of the cusp. and had consequently, by the removal of the top, been more shortened than any others. The contiguous tubes have been reduced next in amount, whilst those at the extremity of the worn surface have been least shortened. Upon tracing the tubes which have thus been rubbed down, from their outer extremities to the pulp cavity, it will be found that the amount of secondary dentine laid on, so to speak, upon their inner extremities, is in proportion to the amount removed externally." It will be seen that "the central tubes abut upon the apex of the triangular mass of secondary dentine, while those at the sides of the wear, and next to the yet unbroken enamel, terminate internally at the edges of the new repair tissue. And it should be observed that, not only does the repair tissue correspond with the amount of injury done to each tube, but that it is generally limited by the internal abutment of those tubes which are at the edge of the worn surface."

Teeth in which the cervical portion of the labial surface is deeply grooved, the result of one, two or three causes—defective development an acid condition of the oral secretions, friction of the tooth brush—are objects of almost daily attention. These causes show very clearly "the correspondence of the repair with the individual tubes injured. * * * The tortuous direction of the dentinal tubes in this situation, and their elevation out of the horizontal line, * * * present circumstances which admirably test and illustrate the manner in which the structural direction of the tissue determines the position of the repair."

2d. *The encroachment of caries* is a prolific cause of dentine deposit. Though Salter does not say so, it is reasonable to infer from his remarks on somewhat analogous points, that caries is almost—if not quite—always accompanied by dentine of repair. An area of carious surface that includes a dozen tubuli, points to a relative area of dentine of repair on that surface next to the pulp. This area of dentine of repair includes tha central ends of the same tubuli that open on the carious surface.

Take as an illustration a central incisor, with a cavity at the angle formed by the mesial and incisive borders. From the periphery of the tooth to that angle of the pulp chamber that corresponds to it, the tubuli converge; consequently, when the amount of dentine of repair is compared with that of tissue removed, the former shows to a disadvantage.

3d. As an illustration of what dentine of repair will do in cases of fracture, take the same tooth, the angle of which has been removed, not by disease, but by mechanical violence. It is these cases, as well as those in which the angles are removed by disease, that call for contour filling—an operation that we sometimes hesitate to perform because of the apparently near proximity of the pulp. We infer from our author that we have little reason to apprehend danger of this kind, especially in cases in which the fracture has existed for some considerable time. We may excavate directly toward the pulp with little or no fear, of exposure. All this, for the reason that the horn of the pulp opposite to the fracture has undergone calcification—has been the seat of the formation of dentine of repair.

From what has been said, "it will be seen that the dentine of repair has a very close relation both in amount and position to the injury that has caused it. When, however, the amount of wear, or fracture, or decay, is great, there ceases to be that exact and proportionate recompense, the new tissue forming over a large surface of the pulp cavity, and often much in excess; and it may be stated, as a general rule, that even where the injury is slight, if the repair be not in accurate proportion, the difference is on the side of excess, and corresponds to a larger surface than is indicated by the internal abutment of the injured tubes."

II. *Dentine Excrescences* are described as "little nodules of secondary dentine, occasionally found attached to the interior of the pulp-cavities of teeth which may be otherwise healthy, unassociated with injury or other disease. They also occur in the fangs of teeth which, higher up in the crown, are injured, and are the subjects of dentine of repair. They seldom give evidence of their presence; but it appears that sometimes they are associated with neuralgia.

III. *Osteo-dentine* "is a form of secondary dentine in which the tissue combines the characters both of bone and ivory. It is developed by the general conversion and intrinsic calcification of the several tissues of the pulp. It is usually vascular; it is frequently arranged in systems *around* vessels, like the Haversian systems in bones and it sometimes contains true lacunæ."

Every tissue of the pulp is liable to become calcified. It appears that "the vessels, or many of them, are the least affected; still they are early reduced in number, as those which occupy the axis of the dentine-Haversian systems are far less numerous than those of the original pulp." Our author saos he has "frequently seem them of quite healthy structure when almost every trace of the other tissues has been lost."

He also tells us that osteo-dentine is less abundantly supplied with tubes "than any other form of dentine, and is usually very transparent; this does not altogether arise (as does the transparency of dentine of repair) from the filling up of the tubes with secondary deposit within them; many of the tubes are doubtless so filled up, as is the case with all dentine formed in states of tooth-irritation or inflammation; but they are nevertheless really less abundant.

What follows puts the peculiar features of the several forms of secondary dentine in a nutshell:

He says, osteo-dentine and "dentine excrescence are not infrequently seen in teeth that are worn and exhibit dentine of repair; they are evidently associated, and have a similar exciting cause. Dentine of repair, however, always forms upon that portion of the pulp-cavity next to the lesion, and is adherent, and in direct structural continuity with the primary dentine; whereas osteo-dentine and dentine excrescence occur almost always first towards the extremity of the fang, and the former is frequently quite detached from the remainder of the dentine. Moreover in dentine of repair, the pulp is detached, and can easily be removed, whereas in osteo-dentine it is bodily involved in the new tissue. Where both forms exist, they usually increase till they become confluent and confounded together, and the origin of the different forms of secondary dentine, and their relation to one another, is then lost."

IV. *The Replacement of Dentine by Masses of Bone* is a subject of some considerable interest, and opens up a broad field for speculation. One author claims that it is "probably from insufficient and neglected opportunity that I (he) must rest upon a single, but most remarkable specimen of abnormal structure to illustrate this subject."

The specimen was a molar. "It had three canals piercing the neck just below the edge of the enamel. * * * These canals were short and horizontal." It was found that the tissue around these canals was "yellower and clearer than normal dentine," and had "a cancellated aspect."

The microscope proved this "doubtful tissue * * * to be bone, resembling very closely ordinary cancellated bone of the skeleton. This occupied about a fourth of the crown and neck of the tooth. * * * Upon examining this structure with higher power of the microscope," he found it "to resemble skeleton bone more than crusta petrosa."

In this case "we have true vascular bone occupying a considerable portion of the crown of a tooth. The specimen is * * * unique. But it is very unlikely that the morbid condition has not occurred many times before. Bone structure would be liable to bone disease, and these occurring in teeth would, in such a situation, occasion anomalous and unexpected symptoms and results" He hints strongly at the probability "that some such condition may have existed in the few reported cases of abscess in the hard substance of teeth."

Such, gentlemen, are the few facts that we thought it worth while to present for your consideration. We might have extended the list indefinitely, or, perhaps, made a more judicious selection; but we felt quite sure that these few would furnish material enough for discussion, and, on the whole, prove of as much interest as any other facts embodied in the book.

Now that we are about to close our remarks, we cannot refrain from a few comments on the last fact detailed—that of replacement of dentine by bone.

When we read of this case we found ourself in a mass of queries. How happened bone in the pulp of a tooth? Is there an ultimate anatomical element in the tooth-pulp that has more than one special function? Can the connective tissue corpuscle or the dentinal cell produce other than connective tissue or dentine?

Whatever may have been the theory as regards the production of special tissues, it is now pretty well settled that special tissues are the work of special agents. Osseous tissues results from the labor of bone cells; connective tissue, from that of connective tissue corpuscles; dentine, from that of dentinal cells.

It is true that the microscope and chemical reagents, essential to histological research, give us neither physical nor chemical peculiarities, by means of which we can foretell what tissue this or that particular particle of germinal matter will produce; nevertheless, we are bound to assume, while our knowledge of this subject remains in its present condition, that any particular particle of germinal matter will produce only that kind of tissue in which it had its being, and of which tissue it once formed a part. Periosteum of bone, if removed and implanted under proper conditions, will produce in its new situation exactly what it did in its old one—it will produce bone and nothing else.

By a solution of continuity in either the hard or soft tissues, or both, the diseased elements of these tissues are liberated—are taken up by the vascular structures and conveyed to other and remote parts of the system, where, if they live at all, they infect the tissues of those parts with the same disease whose ravages gave them their freedom.

Now, possibly, in this case mentioned by Salter, there had been, at some time in the patient's history, a solution of continuity in the hard tissues; bone corpuscles, or the germinal element of such corpuscles, escaped and made their way into the vessels; were conveyed to the tooth-pulp, there to lodge and develop as true bone. Or, possibly while this tooth was in process of development, the soft pulp—at a very early stage of its history—and the elements of the cancellated structure in its vicinity, were both enclosed. If this were the case, and pabulum supplied, the simultaneous development of both dentine and true bone in close relation was a foregone conclusion—*Penna. Journal of Dental Science.*

ARTICLE V.

The Treatment of Exposed Pulps in Filling Teeth.

(Concluded.)

BY SAMUEL WELCHENS, D. D. S., LANCASTER, PA.

Read before the District Dental Society of the Seventh Judicial District of the State of N. Y., at Rochester, N. Y., June 1st and 2d, 1875.

THE EXPOSURE OF THE PULP PROPER, AND ITS TREATMENT.

In all dental operations, as in any other branch of surgery, we regard boldness or heroic work and simplicity of treatment as the most successful. The surgeon who cuts nearest the heart with a steady and confiding hand, and is the least ostentatious in his operation, gains the most confidence and establishes the best reputation, because of his simple boldness, which is always a sure guarantee to success. So also in the case of the dental surgeon. He who is most heroic, whose operations are characterized with earnest simplicity, not overburdened with treatment, or jeopardized with complications of his own creation, will, in nine cases out of ten, be successful, whilst the bulk of failures are always on the side of the timid and over-cautious operator, who never gets through healing one disease until another sets in.

The symptoms indicating the approach of caries or an instrument to the pulp need no elaboration in this paper. They are perfectly familiar to an observant, intelligent practitioner and painfully so to the patient. In order, however, fully to appreciate all the conditions and changes of our subject, the enumeration of some of them may be of some value here.

The conditions under our first head may not be regarded as strictly pathological. Elongations of the pulp may be approached by caries without any more indications of pain or inconvenience than there is in sensitive dentine. And as if protected by nature, they usually recede as they are approached by such disorder, and only exposed by the sharp cutting edge of the excavator. In the approach of caries, however, to the pulp proper, where the disease so disintegrates the dentine as to allow thermal changes to effect the pulp, the true diagnosis is by the symptoms. In such cases there is frequent uneasiness, an unpleasant indication of the fact that the tooth is there, slight irritating pain at night, with decided trouble in the application of cold or pressure. These may be regarded as among the most prominent symptoms of the earlier stages of the exposure. When this is the case, a careful excavation of the carious dentine should be made, and if that portion immediately covering the pulp is found to be hard and firm, though dark and decayed, but which affords a pretty secure covering for the pulp, it should be allowed to remain, and after the cavity is carefully and thoroughly cleansed of other particles of carious matter, it should be swabbed with diluted carbolic acid or creosote, after which a thin lining of oxy-chlorids of zinc or Guillois' cement will prepare it for a permanent filling, with very little danger of subsequent trouble.

But we go a step further. When acute inflammation has set in, and the intense suffering of the patient expels every doubt as to the true stage of the disease, and upon a careful examination we find the dentine decomposed and soft, allowing a free application of atmospheric air, and the secretions of the mouth, to change the normal condition of the pulp into a pathological state, the inflammation should be reduced before suppuration sets in by some emollient or antiflogistic application, and when order is again restored, a careful excavation even to an absolute denudation of the pulp should be made, and proper conservative treatment instituted. At this juncture, however, there is some diversity of opinion as to the most effective therapeutical agents in order to restore the pulp to its normal state, and secure its functions to the tooth after the cavity has been perfectly filled.

To reduce the inflammation calendula and aconite, creosote, carbolic acid and glycerine are used respectively, and in mixtures, with more or less success.

My treatment is a preparation of *creosote* and *monarda*, or oil of horse-mint, in equal quantities. This is applied upon a pledget of cotton, and carefully covered with gutta-percha, with two or three re applications in as rapid succession as the case may seem to require, and then a covering or capping is effected with oxy-chloride of zinc or Guillois' cement, and without any delay the case is ready for the filling.

In this treatment, through the rapid recuperative energies of the pulp, we have order and health restored with but slight histological changes. The capping is thus in direct contrast with the substance of the pulp, and the astringent and absorbing powers or properties of the agent employed renders it the best (in our estimation at least,) that can be used. There is no undue pressure, and if the filling is put in as soon as possible, after the cement granulates, and before it becomes saturated with the saliva, and all the conditions of the treatment are intelligently complied with, we have no hesitation in saying that a failure is almost out of the question.

THE EXTIRPATION OF THE PULP AND TREATMENT OF THE CAVITY.

We now turn to the last stage of exposure and irritation, the treatment of which is much more complicated, and consequently more difficult and protracted.

In "Wedl's Pathology of the Teeth" we have the following description of the disorder to which we now call attention.

"When ultimate denudation of the pulp has taken place, and has continued for some time, the difficulties of the treatment must be very much enhanced; under these circumstances the surface exposed to the air is much more highly charged with blood than is normally the case, and in many instances is in a constant state of effusing lymph, at times pus—in other words, the surface is an ucler, and should be treated as such; but so precarious is the management of this class of cases that no definite rules can be laid down which will be applicable to all of this description. That which will at one time give relief and permit closure of the cavity, at the next, when the symptoms are similar and the conditions are apparently the same, will be followed by a return of pain, indicating that effused fluids are pressing between the filling and the organ.

"Various irritations have asserted themselves, and probably repeated attacks of pain have been suffered, the consequence of severe congestions. Alterations of structure may have taken place, which will never permit the functions of the pulp to be normally carried on. The important changes which have taken place at the point of exposure, where it has been acted upon by various deleterious influences, and along the course of the vessels and nerves, if we are to rely upon the investigation of the German observers in a field which has been surprisingly neglected, are of such a nature as to render questionable a proper cure. The dentinal cells over the exposed part are obliterated. The connective tissue has suffered proliferations The blood vessels are altered by serious structural changes. The nerve-fibres also have been deranged by the depositions of fat granules, not only between them but in their interior. In short all the structural elements of the pulp have undergone changes."

When all this mischief has taken place no one will question the feasibility of devitalizing the pulp and removing it. No man is justifiable in filling over a diseased pulp. If he cannot restore it to a normal state, he should adopt the death penalty at once, and secure the pulp cavity as speedily as possible. Nor is he justfiable in instituting a series of experiments, and take months or a year to do that which can be better done in a few weeks. To submit an individual to the time, torture and expense of a large fancy operation, when the tissue is dead and broken down, or when the pulp is entirely disorganized, without its removal, is not only perpetrating a manifest fraud, but it is flat and consummate quackery.

There are various methods of devitalizing the pulp. But the common nerve paste, composed of arsenic, morphine and creosote, is, I believe, in most common use. In twenty-four hours it will do the work most effectually, when it should be immediately removed and an application of an antiseptic to guard against periostitis. At this juncture the greatest care and judgment should be exercised, lest complications present themselves, or accidents and difficulties arise to retard the work, but in every instance be bold and heroic, be careful and tender, in a word, be master of the situation, and then you will be certain that you are right.

In conclusion, I will submit a few remarks in regard to my method of treating the cavity after I have gotten rid of every vestige of the dead pulp.

If there is an abscess or suppuration of the peridentium, I break down the abnormal tissue with the use of carbolic acdi, pure and simple, and then syringe the cavity with a solution of hypo-sulphite of soda, ten grains to the ounce, and paint the surface of the gum with concentrated tincture of iodine. This treatment for a week will render the case manageable. I then use diluted carbolic acid, about fifteen per cent., or my mixture of creosote and monarda to restore the membrane to a normal status, and fill the root just as soon as this is effected.

I am aware of the fact that much difference of opinion exists as to the method of filling roots after the pulp has been extirpated, and that there is some prejudice against the use of oxy-chloride of zinc for that purpose. I have two methods of filling the pulp cavity in practice. The one with gold, the other with Guillois' cement. I prefer the cement to the oxy-chloride, because it does not set so quickly, thus giving me time to do the work well. My method, in its use, is to cut off a piece of gilling twine about three-quarters of an inch in length, saturate it in a thick paste of the cement, and then, with a fine root plugger, carry it to the apex and pack in; if it does not fill the cavity I add the cement and cover well with cotton until it granulates. If the case has been a plain one, in which there has been no undue inflammatory action, I proceed at once to fill the crown.

If, however, I have had some difficulty in restoring the tissue to a normal condition, I wait a week before permanently closing it up. With this treatment, I scarcely ever fail.

I prefer this to the gold filling for the following reasons:

1. The lint of the twine being non-irritant and saturated with the cement becomes a healthy, solid body, and so medicated to render it incapable of irritation, and by virtue of its absorbing properties, will immediately take up any gas or moisture that may exude from the membrane through the foramen.

2. Gold will not do this; is possessed of no medicament, and if not perfectly solid from the apex to the crown, the exudation will permeate its body, causing disintegration, disease and decay, resulting ultimately in death of the root, abscess, and not unfrequently epulis.—*Missouri Dental Journal.*

EDITORIAL. ETC.

The Progress of Dentistry—Dr. G. S. Miles, President of the Illinois State Dental Society in his annual address, at the meeting held at Ottawa, in May last, spoke as follows upon this subject:

"Dentistry, like civilization, has ever been traveling westward—from its early life on the banks of the far-famed Nile, it crossed the Mediterranean, passed successively through Greece, Italy, France, England, America. During the first struggle between Great Britain and the Colonists, one hundred years ago, a few practitioners bade farewell to the endearments of home, crossed the Atlantic and established themselves upon our eastern coast. The best information we have of the condition of Dentistry prior to its advent upon our shores is, that it was but a very insignificant calling or occupation, pursued by a few individuals without scientific attainments, whose curriculum of work was of the most limited range. Hence it is very well understood that the information possessed by the earlier practitioners of Dentistry in this country, in regard to the structure and pathology of the teeth, was very meagre and destitute of that scientiffc knowledge so desirable and essential to the successful practice at the present day. But the limited knowledge possessed by those who practiced the art at that day was only equaled by that of the people, in regard to the necessity of attending to their teeth, or the fact that any saving influence could be applied to them. The fact, also, that teeth were less subject to decay than in these latter days, occasioned a very limited demand for the services of the Dentist, and so slow was its growth, that in 1820 it is said there were but about one hundred dentists in the country.

From that period, however, to 1840 its progress was much more marked. In 1839, through the instrumentality of Harris, Brown, Hayden, Parmly and others, the *American Journal of Dental Science* was established, which, more than any one thing, exerted a greater influence in elevating the profession throughout the country. Quickly followed the establishing of the *Baltimore Dental College* by a portion of the same earnest workers, and about the same time an organization of a Dental Society national in its character, was consummated. Since these important steps were takem the advancement has kept pace with the onward march of civilization in all that ennobles a profession in its moral standing and scientific attainments, until at the present time there are some 12,000 practitioners scattered through our vast domain; half a hundred Dental Societies; ten Dental Colleges, and quite a number of journals devoted to the education of students in all branches connected with the science and art of Dentistry, the discussion of the various subjects appertaining to the profession, and the dissemination and cultivation of such ideas as may be connected with the growth of the profession and of interest to men of thought.

AlthoughDentistry was practiced in the old world to a limited extent as a *calling*, as a *profession* it is a product of this country and during the past half century.

During the past fifty years Dentistry has been slowly marching across the continent. It had passed through the rich alluvial basin of the Mississippi, crossed the Missouri and the plains beyond,—it has stood upon the high crest of the Rocky Mountains, and penetrated that vast region beneath the surface of which are riches *grander* than ancient history recounts and *vaster*,—it has swept down the western slope and made its mark in our far-famed Eldorado,—it has crossed the placid surface of the wide Pacific, and almost spanned the world. It is now looking with longing eyes across the flowery kingdom for "new worlds to conquer" and new triumphs to gain. But the worth of a profession should not be measured by its territorial expansion, but rather by its work accomplished, its deeds performed its scientific exhibit; and I take it there is a deeper interest in, and a more thorough knowledge of the practice of the profession than there has ever been before within its history. The members of the profession are beginning to investigate for themselves; to exercise their reasoning powers, instead of blindly acquiescing in the statements of others without due reflection and experiment.

Individuals may say that teeth filled fifteen to twenty-five years ago and even longer, with soft foil, are now perfectly good, while others that have been filled but a few years with cohesive gold are failing—therefore Dentistry is not progressing. But such a conclusion is fallacious, for in order to determine the relative merits of different preparations it would be well to have the same operator or grade of operators carefully observe their work through a series of years, more or less noting their condition from time to time, and by that means be enabled to determine the relative merits of different materials. Whatever may be your conclusions after patient investigation. you are farther advanced in true science and better able to perform the same character of work than ever before. Instead, therefore, of adopting a particular material because it is advertised or recommended by some one, you adopt that method of treatment and that preparation which experience and practice teaches you works out the best results. "To err is human," and Dentists do not claim perfection. I am inclined to believe that they have in the past been prone to accept the statements of others without due thought, and carry their practices to extremes in many cases; and such I believe is the case in regard to the use of cohesive gold. Operators have been made to believe that cohesive gold was the only thing to use for a good filling, and they have used it in many cases without thinking that while some operators may perform that work or fill that tooth entirely with cohesive gold, in so satisfactory a manner as to permanently save the important organ, in their hands it proves a failure; and I am inclined to think a more satisfactory result will be obtained by the employment of a larger amount of soft foil than some have been in the habit of using the past few years.

Those gentlemen who are taking an interest in conducting the number of Dental Schools in our land for the proper education of those who are entering the ranks, not only in the manipulative art but in the knowledge of cause and effect of those diseases peculiar to the oral cavity, may be the pioneers in the great work of raising the standard of our profession. Graduates of Dental Colleges ought to be men who, leaving the Institution, are able to form correct conclusions upon those subjects connected with this profession, and they, united with the large number who have not had the advantage of such instruction, but who are, nevertheless, heartily interested in building up the profession, cannot but produce a salutary effect upon the great mass of the profession in molding their professional and moral character.

The fact that so large a number of the profession are investigating and studying the principles and theories which underlie our professional fabric, is one of the surest evidences of healthy growth.

Nothing is more evident of this than the interest taken in the great number of Dental Societies throughout the length and breadth of our country, and where the members are free to express views and are bold to criticise whatever sentiments are advanced that are in opposition to their convictions, no matter from whom they eminate. This spirit of inquiry and investigation, which is more general than ever before, is a great proof of progressive earnestness in the profession, and that individuals are not allowing their enthusiasm to run away with their judgment in any particular branch, but are adopting a more conservative mode of practice.

The American Academy of Dental Surgery of New York.—A special meeting will be held at the College of Physicians and Surgeons, New York city, on Tuesday and Wednesday, October 19th and 20th, 1875, at 10-30 o'clock A. M. Also, the regular meeting at 50 West 35th Street, on Tuesday, the 19th of Oct. at 7 1-2 o'clocg, P. M. The order of exercises consists of Prayer, by Rev. Hugh Miller Thompson, D. D, Rector of Christ Church, N. Y. Greetings by Mayor Wickham, and the President, Dr. Perine. An address on behalf of the medical profession on the "Relations of Dental Science to Medicine," by Prof. Wm. H. Hammond, M. D., of the University of New York. An address on behalf of the dental profession, by W. C. Barrett, D. D. S., of Buffalo, N. Y. Essays by Drs. Jas. E. Garretson, Alfred L. Carroll, A. P. Merrill, C S. Hurlbut, J. B. Wilmott, and W. T. Elliott, to be followed by discussions.

The Committee of Arrangements consist of Drs. A. P. Merrill, F. S. Howard and John P. Adams.

BIBLIOGRAPHICAL.

The Histology and Histochemistry of Man.—A Treatise on the Elements of Composition and Structure of the Human Body. By Heinrich Frey, Professor of Medicine in Zurich. Translated from the Fourth German Edition by Arthur E. J. Baker, Surgeon to city of Dublin Hospital; Demonstrator of Anatomy Royal College of Surgeons, Ireland; etc., etc., etc., and revised by the Author. D. Appleton & Co., Publishers, New York, 1875.

This is a very comprehensive and elaborate treatise, which has become the standard work of Pathological Histology; the aim of the author being to vindicate the dignity of this science and demonstrate its most elementary principles. That he has succeeded in presenting a perfect compendium of the views of the most reliable and thorough histologists this work is an evidence; and all interested in the subject will find it to be a valuable contribution to medical literature. The contents present first, the Albuminous or Protein Compounds of the Elements of Composition and Structure of the Body, Hæmoglobulin, Histogenic Derivatives of the Albuminous Substances or Albuminoids, the Fatty Acids and Fats, the Carbohydrated, The Non-nitrogenous Acids, The Nitrogenous Acids, Amides, Amido Acids and Organic Bases, Animal Colouring Matters, Cyanogen Compounds, Mineral Constituents. Second: The Tissues of the Body—Tissues Composed of Simple Cells with Fluid Intermediate Substance, and also of Solid Intermediate Substances, and those belonging to the Connective Substance Group, those composed of Transformed Cohering Cells and Composite Tissues. Third: The Organs of the Body—Organs of the Vegetative Type, and of the Animal Group. The work is illustrated with six hundred and eighth wood engravings, and contains six hundred and eighty-three pages,

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Cholera Epidemic of 1873 *in the United States.*—Government Printing Office, Washington City.

This report is issued in accordance with the requirements of the joint resolution passed by both Houses of Congress, March 25th, 1874, authorizing an inquiry into and report upon the causes of epidemic cholera, derived for the Treasury and War Departments, and consists of one thousand and twenty-five pages.

Transactions of the College of Physicians, of Philadelphia, Third Series, Vol. 1. Printed for the College, 1875.

Among the many interesting and instructive reports published in this volume, is a complete history of the Autopsy on the Bodies of Chang and Eng Bunker, commonly known as the "Siamese Twins," illustrated by chromo lithographs, and wood cuts.

Transactions of the Medical and Chirurgical Faculty of Maryland, Seventy-seventh Annual Session, held at Baltimore, April, 1875, Turnbull Brothers, Publishers, Baltimore, Md.

This volume contains the annual oration, "Constitution to the Medical History and Physical Geography of Maryland. By Joseph M. Toner, M. D., of Washington, D. C., and Reports by Drs. T. R. Brown, on Surgery; W. T. Howard, on Obstetrics and Gynæcology; Richard McSherry, on Materia Medica and Therapeutics; W. C. Kloman, on Anatomy and Physiology; G. H. Boyland, on Surgical cases in Foreign Hospitals; J. E. Atkinson, on Contagious Fevers; Saml. Theobald, on Tinnitus Aurium; W. Gleitsmann, on Pulmonary Phthisis; F. T. Miles, on Galvanic Current in Electro Therapeutics; S. C. Chew, on Digitalis in Cardiac Disease; J. Van Bibber, on Treatment of Paralyzed Muscles by Elastic Relaxation; and business of the Society.

MONTHLY SUMMARY.

Dispensing with Rain.—As calcium chlorid possesses the property of attracting moisture, and that an object wetted with its aqueous solution will not dry, it has been proposed to water our streets with such a solution in order to avoid dust in summer. Prof Paraf proposes to extend its use to agriculture, and to moisten all kinds of soil with it in dry regions where rain is deficient. He says that its application produces irritation more cheaply than any other method. He found that a piece of land where this is applied will retain its moisture for three days, while a similar piece of land next to it, irrigated with water alone, will dry in a single hour. He claims that this will not only make two blades of grass grow where only one grew before, but render to sandy and desert wastes a luxuriant vegetation, and consequent prosperity. It will have to be found out in how far the presence of an excess of calcium chlorid is beneficial to some plants and injurious to others. We fear the latter, as the presence of sea-water, in which calcium and sodium chlorids are the main ingredients, is injurious to most plants. Thus the low lands in Holland (of which from time to time some are being redeemed from the sea by ditches) remain unproductive until in the course of time the rains and careful drainage have washed out most of the salts left by the sea-water.—*Manufacturer and Builder.*

Ether vs. Chloroform.—I have almost discarded chloroform and bichloride of methylene, both in hospital and in private practice, and, for adults, use ether as my sole anæsthetic. The secret of administration is to give ether enough, and to exclude external air until insensibility is produced. We sometimes use chloroform for young children, who generally take it kindly, and we sometimes give a few whiffs of chloroform to render irritable air-passages insensitive to ether, but that is all. The contrast between the effects of the two agents is very striking. An old patient brought deeply under chloroform, generally becomes very pallid and bathed in sweat; but the same patient under ether would have a flushed face, and would be sustained and stimulated instead of being depressed. Chloroform and bichloride of methylene have no advantage over ether, except that they act a little more quickly; and the gain of a few seconds affords no justification for the sacrifice of human life.—*Mr. R. B. Carter.*

The committee appointed by the Royal Medical and Chirugical Society to investigate the effects of chloroform found that "the same failure of respiration, whilst the circulation remains good, almost always betokens a recoverable condition;" but that "the failure of the circulation to any considerable extent always involves extreme peril;" and "after the heart has stopped, recovery is but just possible, and is by no means the usual result of attempts to resuscitate." So that the danger from chloroform is precisely of that kind which it is most hopeless when it occurs. On the other hand, the same committee state that ether vapor stimulates the heart's action, and that the pressure in the vessels is maintained until there has been a manifest failure of the breathing. And Dr. Snow proved that it was impossible to paralyze the heart by ether inhalation. It is this stimulating property which gives to ether its greater safety and enables us to use it not only as an anæsthetic, but as an antagonist to the shock of an operation. Under the influence of ether. as I have often pointed out, the patient may have a better pulse after than before even a severe operation—(*Mr. W. W. Haward.*)—*Braithwaite's Retrospect.*

Effects of the Inhalation of Chloroform during Parturition, on the Fetus.—It is stated in foreign jonrnals, that Dr. Sweifel, of Strasburg, submitted the placenta to analysis, by distillation' in a case where chloroform had been inhaled, and obtained chloroform, recognized by several accurate tests. He has also found that the urine of new born children whose mothers had used chloroform reduces Fehling's solution, and has, moreover, observed that the expired air of such children has, for several hours, a well-marked odor of chloroform. Dr. Sweifel, arguing from these facts, concludes that the chloroform inhaled by the mother passes into the circulation of the fœtus.—*Med. & Surg. Reporter.*

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ARTICLE I.

Alternation a Law of Vital Action.

BY L. C. INGERSOLL, OF KEOKUK, IOWA.

An Essay read before the Illinois State Dental Society, May 12th, 1875, and before the Iowa State Dental Society, May 19th, 1875.

Vitality is that mysterious something that distinguishes organic from inorganic bodies. We call it vitality, vital force, vital element, vital principle, the principle of animation, the living principle, life,—we call it an energizing force, a power. Whether we define it by one or by many words, neither one nor all are adequate to bring out from the pale of mystery that which we attempt to define, and place it in the clear light of intellectual perception. It is mysterious still, and incomprehensible as mind. Its incomprehensibility forestalls our efforts to gain a conception of its true nature, and renders unphilosophical any attempt at complete definition. Yet we have no difficulty with *ourselves* in this regard when we talk on the subject, for the conscious possession of life as a vitalizing force within us, compels the most ready intellectual assent to the fact, inexplicable as it is. When a man says by the force of inward consciousness, I *live*, he cares not who says, "You know not what you are talking about," and he scorns any attempt at an analytic solution of the fact. An appeal to consciousness is a sufficient verification of it.

This energizing force of which we are so consciouIsy possessed, is located in and acts through the nervous system in the same mysterious manner that mind—the power of thought and all mental phenomena—is located in and acts through the brain.

The nervous function is peculiar among bodily function. It does not act physically or chemically as do various functions of the body. Nor is its functional power so localized that it is wholly exerted within and upon itself, like the functions of the stomach, the heart, or the transformation power of the tissues. The functions of the nervous system are wholly unlike any known phenomena of other bodily functions. Its power is distributed everywhere, to all organs of the body. and presides over and controls their functional activity. The nervous system makes of the great diversity of bodily organs a harmonious whole. It causes every organ to act in harmony with every other organ, and creates that sympathetic relation between organs remote from each other, with widely different functions, which is so apparent when disease rudely invades the citadel of life, or any one function becomes unduly stimulated. When an unusual muscular effort is put forth, the circulation of the blood is quickened, and by this mysterious harmony of functional action an increased vital energy is exhibited in the lungs. Were it not so the increased amount of blood carried to the lungs would not be sufficiently oxygenerated, and the carbonic acid remaining in the blood would soon create disorder.

It being made evident from general observation and carefully conducted experiments, that the exciting cause of all functional action, whether in the development and growth of the organs themselves, or directed to maintenance of function, or metamorphosis of tissue, resides in and acts through the nervous system as the vitalizing power of the body, it becomes an important study to observe its limitations and the characteristics of its working.

The most observable characteristic of vitality is its limited duration. It has different periods for sustaining functional action in different species of organized beings, and in different individuals of the same species. In all organizations it sooner or later becomes extinct, and their devitalized material forms are dissolved into their original element. This we call death. Again, vitality differs in force or strength in different individuals, and apparently in the same individual at different times.

Another proposition co-ordinate with the one first named is that vitality is a limited force, in the sense of not being adequate to resist every and all influences that oppose vitality. It is, therefore, limited and variable in its power to promote functional action equally in all organs at the same time. I consider this a great physiological fact on which hinge many of the phenomena of development, the performance of function, and well defined pathological conditions.

Mark well the distinction between the fact previously mentioned, that there is an apparent difference in the amount and force of vitality in the same individual at different times, and the fact last mentioned, that there is such a limit to its power that functional action is not and cannot be promoted at any time equally in all organs. The former is an indication or symptom of impaired function. The latter is compatible with the most complete functional performance, and, as I propose to show, is to be recognized as a physiological law. Should we find it to be such a law, and not a mere accident of disease or an idiosyncrasy, it will afford a ready explanation of much that is obscure in ætiology, and give an open door to diagnosis through which we may see and account for many cases of observed want of harmony in development, faultiness in structure and functional weakness.

This leads me to the postulate which I have announced as the subject of this essay—that *alternation is a law of vital action.*

That vitality is variable in its manifestations when the body is diseased, is a fact of the commonest observation; and the diseased condition is looked to as accounting for any changed manifestations of vital phenomena. But if in the most healthful physiological condition the same variableness and change in vital phenomena appear, it certainly cannot be the result of the accident of disease.

The external manifestations by which we in general determine the degree of vitality supporting the organism, is no certain indication of the real amount of vital force mysteriously pervading the whole system. Hence it may not be true that at different times one is possessed of different degrees or different amounts of vital energy—only apparently so.

The fact that in our most healthful condition vital activity is not equal in all parts, and in all functions of the organism at the same time, compels the conclusion that vitality is limited as an energizing force. If its capabilities as an exciting force were unlimited, we could see no reason why the same degree of vital activity should not be found in all bodily functions at the same time, promoting a uniform and steady development of all parts of the system equally. But vitality being limited, and physical development and growth being unequal, as is plainly evident from well observed facts, the conclusion is inevitable that vitality as an energizing force, alternates in its action upon different organs according as this one or that needs the vital stimulus to increased action in promoting harmony of development or equibalance of function. This, to my mind, admits of plainest proof, and affords explanation of many obscure teachings in practical science.

We will attend first to the proofs, then to the practical application.

The harmonies of nature are so marked and wonderful, that processes which seem intricate in one department are revealed to our full comprehension by analogous processes in some other department with which we are more familiar.

If we turn our attention to a healthy growing shrub in early spring time, and carefully turn over the earth at its base, we may discover that the root has already made a growth of several inches while there is scarcely a sign of functional activity of the shrub elsewhere observable. If after a few weeks we look at it again we shall see that the leaf-buds or flower-buds have expanded largely, while the root has made very little, if any, progress beyond the point where we observed it before. The buds unfold, and the leaves expand in size, while there is no apparent growth of stem. Again we look at it and find no perceptible change in the foliage, but we find a growth of wood. At length the stem ceases for a while to grow, no new leaves are being put forth, while the vital forces are occupied in the production of roots, to preserve the harmony of development and to secure nutrient support corresponding with the increased and increasing demand. When the flower of a fruit-bearing tree drops its petals, the vital forces are directed to the rapid production of fruit; and if the fruit is very abundant the woody fiber ceases almost entirely to grow. The stoned fruits, as the peach and the plum, always surprise us in the succeeding weeks by apparently ceasing to grow at all. There is no increase of the young fruit in size, but nature is occupying her forces in hardening and maturing the stone and the enclosed seed germ.

This example from one of the great kingdoms of organic nature furnishes a series of illustrations of the law of vital action in its *working by turns* in different parts of the same organism—an alternate working and rest. And the suspension of the more active working is not the result of disease, or any abnormal condition, but is in perfect harmony with a law inherent in physical nature.

We have also in this illustration a confirmation of the fact above mentioned, that vitality is limited in the sense of not being adequate to conduct all the operations of development and growth at the same time, and thereby declares most fully the great physiological law of alternation in the developmental processes of distinct parts toward a complete whole.

If we turn now to the animal kingdom, we find the same law.

Dalton, in his physiology, (p. 638,) in presenting the subject of the development of the *Cerebro Spinal Axis*, gives an illustration of a fœtal pig five-eighths of an inch long, showing the embryonic development of the brain and spinal cord. He remarks concerning the illustration thus: "It will be observed that the relative size of the various parts of the encephalon is very different from that which they afterwards attain in the adult condition. The cerebellum is very much inferior in size to the medulla oblongata. Soon afterwards the relative position and size of the parts begin to alter. The hemispheres and tubercula quadrigemina grow faster than the posterior portions of the encephalon. * * The relative dimensions of the parts are constantly changing." Let it be borne in mind that the different parts of the *Cerebro Spinal Axis* begin their development at nearly the same time, but under the operation of the law of alternate vital action, the successive stages of development are unequal.

In the human subject the younger the embryo the larger are the head and upper parts in proportion to the rest of the body, showing the ascendency of one part over another in the rapidity of growth at different periods of development.

We read again in Dalton, (p. 646,) that "after the small intestine is once formed, it increases rapidly in length. It grows indeed faster than the walls of the abdomen, so that it can no longer be contained in the abdominal cavity, but protrudes in the form of an intestinal loop, or hernia, from the umbilical opening This protrusion of the intestine can be seen during the latter part of the second month. At a subsequent period, however, the walls of the abdomen grow more rapidly than the intestine. They accordingly gradually envelop the intestine, and at last enclose it again in the cavity of the abdomen." Viewing the embryonic development as here presented, the alternation of vital action is clearly manifest; and it will be readily seen that should anything occur to disturb this alternation at the proper time, the result would be a case of congenital hernia.

In dental science we have examples as fully illustrative of the law of *alternate vital action* as those already referred to.

Tooth development can be studied intelligently only in connection with the development of the maxillary bones. The teeth have their after-growth and life-long support in these bones. While zoologically and æsthetically speaking, they may give character to the features of the face, physiologically the maxillary bones have their existence and development for, and in subservence to, the teeth as functional organs.

Along the semi-cartilaginous line of the embryo maxilla is seen as early as the sixth week of gestation a groove, and in this groove, a little later, are seen two or more papilla. From the tenth to the twelfth week the groove deepens, and membranous tongues are projected from the opposite sides at regular distances to form sacks for the tooth germs, and sockets for the future teeth.

No sooner is this condition assumed than the tooth pupilla makes a rapid growth high above the margins of crypt in which it was sunken. Then for a few weeks it ceases its development, and the surrounding sack takes its turn of growth, the papilla is again found below the surrounding membrane, the borders of which contract and shut the germ in. Thus the tooth germ alternates in growth with the sack which encloses it.

Pursuing the development farther, we find the pulpy tooth appropriating lime salts in the process of dentification, and alternating this process with the ossification of the alveolus. Both processes do not proceed equally during the same period of time. It might be said that there is possibly a deficiency of bone phosphates, so that it would not be vitally economical to conduct the building up of both tooth and socket at the same time—and that a supply of more material might set *the whole* machinery in motion. This statement assumes that the strength of vital action exhibited depends upon the amount of constituent elements artificially supplied. But observing the operation of the law of development under the power of both vegetable and animal life, whether it be the development of organs near to or remote from each other, composed of the same or of different elementary constituents, all in harmony with the law of alternate vital action, it will be difficult to compel the assent of the judgment to any interpretation of natural processes which ignores that limit of vital action which induces alternation as an inherent law of organic function.

In tracing the operation of the law still further in the development of the dental organs, we find that when the imprisoned tooth is ready to emerge, with only its crown and neck dentified, vital development leaves here the incomplete root with only a sufficient amount of vital force to preserve the tissue *intact* while the main force of developmental energy is employed in the emargination of the the alveolus to let the imprisoned tooth through. The work is now not building up of bony tissue, but tearing it down by absorption. Just so soon as this bony covering of the alveolus is removed, the alternating work of tooth development again goes on with vigor, and the pearly crown emerges from the gum. When the crown is fairly through, vital action returns to the work of building up the walls of the alveolus to embrace firmly the neck of the tooth.

Having thus, by numerous examples, made evident the fact of limited vital force, and the law of its alternate action, I proceed to some observations of a practical nature, and to adduce some peculiar conditions, both of a physiological and pathological character, which this law may aid us in explaining.

Let it be borne in mind that all parts of the human body do not begin their development at the same time; that new functions are developed at different periods after birth; that some organs are of slow growth, requiring many years to develop the full power of their functions, while others obtain their complete functional power in a few years; that some organs, after complete activity for a series of years, cease their function entirely. The age of twelve to sixteen years marks the period when the organs of reproduction are developed, and forty-five, or near that, the period when the function ceases. It is said that some of the carpel bones do not begin their ossification till twelve or fifteen years after birth. On the other hand the teeth attain their full size and full performance of function at from twelve to fourteen years of age.

The teeth it will be observed, are an example of early and rapid development. To accomplish this, the vital force is taxed to a greater degree than is required for these organs in any after period in life. This greater activity of the vital force in developing the teeth implies a less activity somewhere else, or a cessation of the developmental process in some other organ. Beside the extra amount of vital energy required at this period for the development of the teeth, another organ, the stomach, is undergoing a rapid development at the same time, and also takes from the sum of vital force with which the body is endowed a very considerable share. The stomach is undergoing a change, in preparation for the new order of things to be introduced and made necessary by the function of the teeth. The stomach of the toothless infant is in no proper sense a stomach at all. It is little else than an intestinal enlargement. The right extremity of that portion which afterwards becomes a stomach passes so gradually into the intestine that the pylorus does not distinctly form the line of demarkation between the two. But when, by the development of the teeth, nature indicates the arrival of the time for nourishing the system with more solid food than milk, the vital forces are called to producing an organic change in the digestive system. Milk having been the only food for the infant, a kind of ailment which needed no detention in the digestive tract to liquify it, such an organ of digestion as is the stomach of an adult, was not needed. But at the time of the emergence of the teeth, the stomach assumes the form of a well distended pouch where solid food, too often poorly masticated, is detained and liquified. This change of form requires a more than ordinary amount of the vital force.

This is the period of teething so fraught with disease and death to multitudes of the human family. Let us apply the law of alternate vital action in explanation.

If the theory be correct that vitality is a limited and fixed sum, what is required extra, of vital force to carry on the development of the teeth and the stomach must be withdrawn from some other organs, which will, for the time being, be feebly supported, and therefore predisposed to functional disturbance from outward impressions. The lungs not being as vitally supported as usual, pulmonary diseases may at this period be induced by very slight exposures. The skin also having contributed of its full vigor of vitality to the demand of the teeth and stomach, does not as fully void its glands of the effete matter, and eruptions on the face and scalp appear. Another change made necessary by the development of teeth and a new diet, is the lengthening of the alimentary canal. It is a well known fact that the relative length of the small intestine is not the same in the infant as in the adult. This work being in progress during the period of teething is an additional tax on the vital energy, which must for the time, leave the function of digestion feebly supported, and derangement of the bowels is a common result. The same susceptibility to functional disturbances may be noted in other organs.

In tables of mortality we are furnished with a list of deaths by " teething," as though *teething* were a disease! We might as well call child-bearing a disease. It is true that the period of the development of the deciduous teeth, for reasons set forth in this essay, is peculiarly open to sudden, fearful and fatal disease. But let us not confound the natural physiological process of teething with the fearful train of diseases that sometimes attend it.

Let us pass on now to the age of puberty. At this period in life some of the most important organs of the whole physical economy pass to rapid maturity, viz: the organs of reproduction. The bodily languor, the littleness, inattention, and general waywardness so often observable from the age of twelve to sixteen, can, no doubt, be traced to a series of functional disturbances in organs weakened for the time being, in consequence of the extra amount of nervous vital energy required to develop into maturity the functions of generation.

Observe now the limitation of vital force in the daily performance of bodily functions. With the stomach full, and in the active process of digestion, the brain acts feebly, and vigorous thinking is an impossibility. On the other hand, while vigorous thinking occupies the brain, the operations of the stomach are disturbed. This is explained on the theory of limited vitality, and the consequent necessity of *alternate action.* It is, therefore, unphysiological to full-force operation at the same time of both stomach and brain. But alternate functional action brings them into harmony with the law of *alternate vital action*, and their working is thus made healthful.

I wish now to call your attention to the prevalence of dental diseases with women during pregnancy. If a woman in this condition be in health, all the functions of nature are in their most active state, each contributing its share to the production of like parts, and a symmetrical whole of a new being in embryo. This being nature's chief, highest, and grandest work, she makes peremptory demand upon the system for all available vital energy, even at a risk of less important organs and functions. Parts previously weakened by disease are now less able to resist the irritating and disturbing causes, and pain and distress follow. This is emphatically true of the teeth. Wisdom points to the remedy. Before this period arrives, the teeth should be put in the best possible condition of which dental skill is capable.

Let us consider for a moment toothoche in the after part of the day. No man's vocation in life is carried on without a waste of bodily tissue, which the various functions of nature must daily reproduce. The use of the feet and hands, the movements of the body, the turning of the head, the act of seeing, hearing, tasting, smelling, the performance of internal bodily functions, the action of the brain for even a moment's thought, the expression of sentiment or emotion, all and every one of these various pheuomena are attended with a waste of organized substance, which the bodily functions must daily reorganize. The performance of function is carried on by the nervo-vital force as an exciting cause. Waste and weariness are convertible terms in this connection. If there has been great waste, there is great weariness. The vital forces are at once occupied for the recuperation of this lost tissue and strength for another day's labor. The diseased parts, in the meantime, are less vitally supported, and declare the condition in which exhausted nature has left them by the sensation of pain. If the teeth are rendered vulnerable by extensive decay, an *evening attack* of dentalgia may be confidently expected during the period for recuperation, even to the extent of banishing sleep, " tired nature's sweet restorer."

It will have been observed in considering the subject thus far that alternate vital action implies an *alternate suspension* of vital action. It will, therefore readily be seen that temporary reductions or suspensions of vital action in different parts of the body are not necessarily referable to pathological conditions, but are in perfect harmony with physiological law.

This leads me, in closing this essay, to allude to the grooved and pitted condition of the enamel not unfrequently seen in healthy mouths.

I know of no other account having been given of this condition of the teeth than that it is caused by a suspension of vital action in the enamel organ during the period of tooth development, prior to the emergence of the teeth from the gum, and induced by some constitutional disease, like measles or small-pox. In the view of the subject as here presented, it is perfectly evident that there *might occur a suspension of vital action* in the enamel organ, caused by the presence of such diseases as have been named, and others of like distinctive character. But it is not, by any means, evident to my mind that this grooved and defective condition is the result of such suspension of vital action. If the teaching of this essay be true, alternate activity and suspension of activity are the law of vital economy. This suspension does not, therefore, result in defect of tissue, but the functional work is resumed where it was left off, and carried on precisely as though it had not been suspended at all. This is according to nature, animate and inaminate, in all her developments.

There are reasons which, to my mind, militate against the ætiological account of this form of defective structure as commonly given in the text books of dentistry. We find that in the development of very many, and probably of all, the tissues of the body, there are repeated suspensions of vital action, and yet the tissues become complete and perfect. It seems very strange, if true, that suspended vital action should be so peculiarly marked on the teeth, and not elsewhere in the bony structure, and strange indeed that it should not appear in the roots of teeth as well as in the crown—roots that were in the dentifying process at the same time. There has never come under my notice a single case where like effects were seen on the roots of teeth. Furthermore, in my experience in operating on such teeth, I have failed to find corresponding grooves in the underlying dentine. It appears, therefore, to be confined wholly to the enamel.

When I have been inquired of by patients and by the parents of children as to the cause of the grooved and pitted condition of their teeth, and I have named some of the constitutional diseases common to infants as the probable cause, I have very often been met by the remark that their children never had any of the diseases named, and had never been seriously ill. Of course my theorizing went to the ground in the face of such statements, and I was nonplused. In offering a new explanation of that condition of the teeth now under consideration, I dare not be dogmatical or very confident until, by carefully conducted observation, I am enabled to place my theory upon the more substantial basis of fact.

Premising thus, I am prepared to state my conclusion from only very limited observations, viz: that the horizontal grooving and pitting in the enamel of teeth is not the result of suspended vital action during the development process while in the sacular stage, but is accomplished, after the teeth have cut the gum, by a solvent, and that each alternate groove and ridge, mark successive stages of their emergence under the law of alternate vital action.

It is well known that a very acrid fluid is poured forth from the margins of the gum when the mucus membrane is diseased, and that this very acrid secretion of the mucus follicles has physical characteristics which retain it in contact with the fresh crowns of the emerging teeth for a very considerable length of time, despite the washing with the more fluid saliva. We have seen in the earlier consideration of this subject, that the teeth do not make a uniform and steady growth and emergence from the gum, but that a growth of one, two or three months is followed by a cessation of growth for a similar period of time. During this period, when the teeth cease to grow, should they be constantly bathed along the line of contact with the margin of the gum with the acrid fluid above mentioned, there must inevitably occur such a solution of the enamel as to form a furrow or groove. During the succeeding months of outward growth from the gum, the solvent is not long enough to contact with the enamel to produce results as in the preceding months, and the enamel not wasted away is left in the form of a ridge. This process going on during the whole, or any considerable portion, of the period of the emergence of the teeth, would produce a series of alternate ridges and grooves, and in a less dense structure of the enamel, lines of indentations or irregular depressions.

With a brief recapitulation, I will close. I have called your attention to numerous physiological and pathological facts, some of which have been ascribed to disease, others to a freak of nature, and others still to constitutional idiosyncrasy or to accidental circumstances which I have attempted to explain as occurring under the operation of a physiological law common to all vital organizations. If I have succeeded in establishing the fact of the existence of such a law, and made clear the explanation of the facts alluded to, and made possible a like explanation of an indefinite number of facts of physiology and pathology, three important branches of a noble science—ætiology, diagnosis and therapeutics—will have been made richer thereby, and mankind, whether drawn by fortuitous circumstances or forced by necessity into suffering, will reap the benefit of applied science through the wisdom and skill of the kindred professions of Medicine and Dentistry.

ARTICLE II.

Dental Education.

BY S. J. COBB.

Read before the Tennessee Dental Association.

Having been assigned the duty of reporting upon the subject of Dental Education, I have written a few lines with a view of eliciting some thought and discussion among ourselves upon this subject, as I see that many of our best men are very much interested in the discussion of it just at this time. It seems that there is more interest manifested in the discussion of this subject at present than has been for many years; all of which I am glad to see, for I assure you, gentlemen, it is a subject that should always be uppermost in our minds.

The unusual interest felt upon the subject of dental education at present, seems to have grown out of a few editorial articles in the *Philadelphia Medical Times*—in which the editor says, "we are not entitled to the name of *Doctor*, as Dentistry in his estimation is not a specialty of medicine." Upon this subject I will say, it matters not what the *Philadelphia Times* or any other medical journal may say in regard to Dentistry as a specialty of medicine. If we continue our progression in the direction we have been going for the last quarter or half-century, we will in time satisfy the public that we are great benefactors, and in every way worthy of any name or title that we may see fit to take unto ourselves.

The fact is, we have not only proven our ability, but we are contributing largely to the alleviation of pain and suffering, as well as the restoration and improvement of man's health. If that is not doctoring, I will say it is just as good, whether it has any medicine in it or not.

In considering this part of our subject, we will ask what is medicine? Webster styles it the art of preventing, curing, or alleviating the diseases of the human body. We will now ask what is meant by the word, *Doctor?* The same author says, "It is one who has passed all the degrees of a faculty, and is empowered to practice and teach it; as a doctor in divinity, physic and law." He says a physician is a person skilled in the art of healing, one whose profession is to prescribe remedies for diseases. Taking Webster as authority upon this subject, I can hardly see how the *Times* man or any one else can refuse to give an educated dentist, one who has taken all the degrees of a faculty and is empowered to practice and teach, and in so doing, he is constantly prescribing and applying remedies for the cure and prevention of diseases, the title of doctor, or declare that he is not a specialist of medicine. If medicine is to be taken as a basis for the prevention, treatment and cure of diseases, dentistry certainly comes in for her part of the work, and in proportion to her success in preventing, treating and curing diseases, so we are entitled to the name of doctor, or specialist of medicine. I say specialist from the fact that we confine ourselves to the treatment of special organs. I am inclined to think the Editor of the *Times* bases the whole of his argument upon two or three illiberal points. The first of which is, that we have not been taught in a *medical college* what we know and practice. The second is, that it is hardly necessary to educate men to practice dentistry, as it can be done by ordinary mechanics. The third is, that a great many who are engaged in it, are illiterate and uneducated men. On this, the last point alone he seems to think that he has sufficient evidences to establish the truthfulness of what he has said. In a recent article he refers to Dr. James Truman, of Philadelphia, who, in discussing this subject at a meeting of the Odontological Society, he says goes as far, if not farther than he does in declaring the dental profession unworthy of being called a branch of medicine. That may all be very true, and yet fail to establish the fact that Dentistry is not a legitimate branch of medicine. The large number that Dr. Truman says are practicing without having received the degree of D. D. S., have nothing to do with the present standard of the dental profession.

It is not the masses of any profession that erects its educational standard. That is always done by the minority, and I might say a few even of that number must be held responsible for the work. So I will say if we have only a few well educated men who have gotten together and erected a standard of education that embraces the knowledge and science of treating and curing diseases of the mouth and teeth, thereby preventing other organs from becoming diseased, and in so doing assist in the preservation of the general health, we are certainly worthy of being styled a branch of medicine; that is, if medicine is to be recognized as a general basis upon which man's efforts to treat and cure disease depends. Our standard of education is as full and complete as that of the physician, as far as the treatment of such organs as we propose to treat, are concerned-and I dare say those who come up to it, are as well calculated to treat successfully such organs and diseases as physicians are to treat such as they propose to treat.

The fact of our having more irregulars according to the number engaged in our business, than the physician, is no reason why we should all be wiped out.

I presume the medical profession had a larger percentage of irregulars when only forty years of age than we have at present. I insist that we shall not be wiped out on account of the large number of *irregulars* engaged in our profession. We are trying to lessen the number every year and will promise to continue our efforts in this direction until something is accomplished; for we are sensible of the fact, that there is where the fault is. Not on our present educational standard, but in not working up to it. In regard to his second point, I will say no man or set of men can do anything well who have not been educated and properly trained to the work; especially anything of importance.

When it is understood that good sound teeth in healthy mouths add ten years to the longevity of man, to say nothing of the additional pleasure and comfort, it is not difficult to see that dentistry is a very important business, and as such necessarily requires men educated and trained to the business. No one can practice dentistry well, who has no knowledge of Anatomy, Physiology, Pathology, Therapeutics, Chemistry and Hygiene, to say nothing of the special knowledge of operative and mechanical dentistry. In addition to all these things, Materia Medica, Surgery, Microscopy, Histology and Metallurgy are necessarily taught in our dental colleges. To treat any organ or set of organs as should be done, one should know something of the whole organic structure of man, as well as the relations and functions of each organ, so as to know something of the influence of diseased organs upon healthy ones. For instance, the influence of carious teeth, and an unhealthy mouth upon the general health. With all the knowledge of the physician it remains for the dentist to explain more fully the relations of the mouth and teeth to the stomach and other organs, so as to see and understand clearly the influence of carious teeth and unhealthy mouths upon the general system. I have no doubt that there are thousands of premature deaths annually from consumption and other diseases that are traceable back to carious teeth and unhealthy mouths. The perversion of the fluid of the mouth from a healthy to a vitalized secretion is sufficient in itself to say nothing of the many aches and pains directly attributable to unsound teeth and diseased gums, to break down and destroy the equilibrium of the digestive organs, after which one is liable to almost any disease, especially where there is a predisposition.

I dare say the great number of children that die teething, would not die in the effort to get their teeth, but, from the fact that the fluid of the mouth is changed from a healthy to a vitiated secretion at that time.

These and many other things evidently show that the organs that we propose to treat are very important; as such it becomes absolutely necessary that we should be educated and properly trained for the work. A few words in regard to the first point, which is that we are not specialists of medicine, from the simple fact that we have not been taught in medical colleges how to practice dentistry. It makes no difference where a person is taught, so he is well taught to do whatever he pretends to do. We have at present nine dental colleges in the United States, besides a dental department in the Harvard University at Boston, Mass.

These colleges have been gotten up for the purpose of teaching men how to treat successfully certain organs of the system so as to promote the general health. The reason why these colleges were gotten up independent of medical colleges, is that physicians in this country thirty five or forty years ago, seemed to think themselves able to do all that was necessary for man's health. At all events, they were not disposed to divide and subdivide medicine, so we were compelled to resort to independent action, notwithstanding we proposed to treat a part of the same man the physician treats. But I am glad to say such is not the case at present; for I am satisfied that a majority of the best informed physicians in America have become convinced that the best way to advance medical science is to divide and subdivide until each department can be thoroughly mastered; an evidence of this fact was demonstrated at a meeting of the American Medical Association last year, when they opened wide the doors to specialists, by passing a resolution recognizing special practice as being legitimate.

If physicians had been as liberal forty years ago as now, or in other words if they could have seen what they now see, we would have been saved the trouble of establishing dental schools independent of medical colleges. While I am of the opinion that we have advanced more rapidly as independent specialists, I am satisfied that every department of medicine should be taught in a medical college, or rather a *medical* university. Now that we have clearly demonstrated the importance of human teeth, and the great necessity for educated scientific men to assist the people in preserving them, I anticipate no further trouble in forming a partnership with the physician for the purpose of making such arrangements as may be necessary to teach dentistry with other branches of medicine. In making such arrangements, I fear, gentlemen, we are going to have trouble among ourselves, from the fact that it may be necessary to give up the name of dental profession which I know many would not like to do, after having worked so long and hard for it. Nevertheless I believe the time is not far distant when there will be a consolidation of the two professions, which I have no doubt will, in the end, prove to be advantageons to both physician and dentist.

The fact is there never should have been any cause for an independent specialty of medicine. Everybody knows that the field of medicine is too large for any one man or set of men, as such should be divided and sub-divided until every nook and corner of the entire premises is thoroughly understood and well occupied. But in our many derisions, we must not lose sight of the importance of co-operation. All must work together if we would accomplish all that medicine is designed to do. In suggesting or advocating the idea of consolidation or merging into general medicine, I do not propose to discourage *dental college* enterprise, for I am not one of those who believe that we have more colleges at present than we need; although I must say that I think one is sufficient for any one state or city at present, and in all probability will be for the next fifty or hundred years to come. While there are two in Philadelphia, Baltimore and Boston, there are other cities in other sections of the country where dental colleges or dental departments in medical universities are needed; for instance, we have ten large states in the South, to say nothing of little Florida, where there is no college or dental department. There is again California, and the whole Pacific coast without a single dental school of any kind. A dental department in a medical university in San Francisco, California, will in a few years become an absolute necessity, and I think I can say with propriety that we need at present a dental department in the Nashville Medical University. For it seems to me that this is decidedly the best location in the south for a dental school; and now that the Nashville Medical College has consolidated with the medical department of Vanderbilt University, we hope for an endowment from that institution in case we make an effort to establish a dental department.

To show that the increased number of dental colleges in the last few years are not in the way of the older ones, and that they are adding largely to the great work that has to be done, we need only refer to such statistics as show a large increased number of students in the older colleges, and a very respectable number in the latter. The number of matriculants in the Baltimore College last session was forty-one; Pennsylvania seventy-two; Philadelphia one hundred; New York seventy; Boston twenty-four; dental department of Harvard University forty-two; Maryland, eleven; Ohio, twenty-four; Missouri, —; New Orleans, —

From these statistics it will be seen that the most flourishing institutions that we have, are where they are the most numerous. Competition is said to be the life of trade, and as no one doubts the truthfulness of the saying, we presume it is applicable to dental college enterprise as anything else; as such we can see the necessity for competition. While I do not advocate the necessity of establishing a college in every nook and corner in the country, I am satisfied that two or three more at present would assist very much in accomplishing the work that we propose to do. It is thought by some that we could and would be more thorough in our teaching if we had only two or three colleges, but I must say I cannot see why that should necessarily be so; for it looks to me that the two *principal points, thorovghness and numbers* would as likely be attained by competition as by endowment. But admitting the possibility of a few endowed institutions becoming more thorough in their teaching than a larger number conducted upon a self-sustaining principle, we must not ignore the fact that ten or fifteen colleges are much more likely to get at the masses who are entering our profession, than two or three endowed colleges. While thoroughness is of very great importance, it is of equal importance that we should manage, in some way so as to educate all who engage in our profession.

When we have managed to get our entire profession thoroughly interested upon this subject, we will then be better able to enforce such rules of thoroughness as we may desire.

In conclusion, I will say, that it would be well for all of our dental societies to take an active interest in this matter In this way we may after awhile get the masses of our profession pretty well interested in dental education.

SELECTED ARTICLES.

ARTICLE III.

The American Dental Association—Fifteenth Annual Session.

SECOND DAY—*Morning Session.*

The Association was called to order at the usual hour, the President, Dr. Dean, in the chair.

The subject of "Physiology as related to the Health of the Dentist," was still under discussion; Dr. John Allen's paper being the basis upon which the discussions proceeded.

Prof. Taft said that a few years ago most of the prominent workers in the profession were broken-down men. An improvement, however, is visible in the last few years. The confinement to which the dentist is subjected is bad, the position he occupies in operating is bad, the inhalations are injurious. We ought to study all these things which pertain to the health of the dentist. The work of the dentist is physically laborious; it does not require muscular energy to so great an extent as rail-mauling and using the sledge-hammer; but it requires the holding of a steady hand; a steady and persistent effort running through the whole day is necessitated. The attention must be riveted; and the mental strain is very great. The surgeon feels exhausted after a short operation only. The two efforts, physical and mental, when prolonged, induce very great exhaustion. Other occupations require only one of these two methods of application; some require physical effort only, others mental. We should strive to prevent this being carried to an extreme. The attention should be diverted; something should be chosen that will wholly draw off the attention. Let the change be great, and the employment chosen wholly diverse. Fresh air, rest, freedom from strain and stress, must be provided. The incompatibility between patient and operator, which was spoken of yesterday, tends to break down the dentist.

Dr. Morgan. Some time since this subject attracted attention in the Mississippi Valley Association, and he (the speaker) had offered a reward of two hundred dollars for an essay on the diseases of dentists and their remedies. Dentists are peculiarly subject to renal diseases, hemorrhoids, and chest diseases. Many avoid the strain upon the abdominal muscles by sitting while operating; and he is glad to know that this is so. A constant strain is more exhausting than a much more severe one for a short time only. Men who can raise forty or fifty pounds at arm's length with ease, will break down if required to continue to sustain only ten pounds. This, the chief cause of the dentist's breaking down, is the result of just such constant tension, which does not occur in other occupations. There is too little attention paid to ventilating our offices. If we could have sushine it would be better, but it is not often possible. He had once lived twelve years in the country on a little farm, but afterwards removed to the city, and in a short time was a broken-down man. He took the alarm and resumed a more active life, riding in summer from six to eight o'clock in the evening, and had been benefited by it.

Dr Barrett, (N. Y.) What is to be done with patients with whom we can establish no proper nervous relations? There are patients whom we dread to see come into our offices; others again we can labor over all day and not feel it. There is some mysterious vitality which we do not understand. Till we can, as it were, discover the difference between death and life, till we can discover some means of preventing this influence, we must go on and be robbed of vital force.

Prof. Taft refuses to operate for incompatible patients. No cultivation will bring about compatibility. These patients, however, will form proper relations with other operators, and he sends them to others. He had noticed that patients sometimes "feel first-rate," while the operator is wilted out. Sometimes quite the contrary is the case. If he suffers from one night's insomnia, he inquires closely into the cause, and usually succeeds in finding and removing it, so that he rarely misses the second night. Ordinarily, the trouble may be removed.

Prof. McQuillen. If every one should refuse to operate for the incompatibles, what would become of them? What would be thought of a physician or a surgeon who refused to attend a patient on account of incompatibility? It is a confession of weakness to talk this way. There is often more incompatibility on the part of the practitioner than of the patient; exacting of the latter unflinching patience and endurance under the most painful operations without any manifestation of sympathy, and, when the slightest shrinking or resistance is made, giving by word and action unmistakable evidences of temper. No man can expect to control others until he has obtained the mastery over himself. Rarey conquered a horse that had been pronounced untamable in an incredibly short time by exerting his peculiar influence over him. We should control our patients not by brute force, but by kindness; making such an impression on them that they will feel there is a magnetic power they must submit to. It is through the heart that the incompatibilities can be reached; a kind word, a sympathetic look, and a pleasant manner will enable a patient to submit to the most painful operations at the hands of a man of feeling, who would not tolerate the touch of another who lacked that essential quality. The operator, in fact, should have that command over himself which will enable him to control the most refractory patients and at the same time manifest a gentleness of manner which will support and encourage the most timid, or he is not entirely fitted for the practice of the profession.

If anæsthesia is but privity of oxygen, as maintained yesterday, how is it that nitrous oxide and chloroform act so promptly that the effects are manifested almost instantaneously, while pearl-divers can remain under water deprived of air other than that in their lungs for two or three minutes? We do not expel all the air from the lungs in expiration or thoroughly inflate them in inspiration. The quantity that is uniformly changed in ordinary respiration is named *breathing air.* What can be drawn in over and above this in the deepest inspiration is called *complemental air.* After ordinary expiration, such as that which expels the *breathing air*, a certain quantity of air remains in the lungs which may be expelled by a more forcible and deeper expiration; this is termed the *reserve air.* A certain quantity still remains over which there is no voluntary control, and this is called the *residual air.* When the lungs have been once inflated, no force can remove all the air from the cells. The hydrostatic test for infanticide is founded off this principle. Cutting off the air, as in drowning and hanging, will undoubtedly produce insensibility or narcosis, with the possibility of resuscitation, but this cannot be regarded as evidence that anæsthesia is not due to the agent employed acting as a poison directly upon the nerve-centers, rather than by an arrest of the oxygenation of the nervous mass.

He had known from personal experience what insomnia or wakefulness meant. In former years, under the pressure of varied duties as a practitioner, teacher and editor, in order to get through the work that crowded upon him he had been compelled to sit up late at night and rise early in the morning, and not unfrequently the entire night had been passed in his library hard at work. To do this he had used coffee and wrapped wet towels around his head, to drive off the tendency to drowsiness. After a time sleep, which had thus been driven away, could not be obtained when it was sought for. And night after night was passed without it, and even when it came it was accompanied by dreams, in which the mind was actively engaged in the labors of the day, with a tenfold exaggeration of work and attendant annoyances and difficulties.

Insomnia is due to an engorged condition of the blood-vessels of the brain, and this can only be corrected by restoring the normal equilibrium of the circulation in every portion of the organism. Exercise in the open air, walking, riding, swimming, and particularly a current bath at Niagara (in which you take hold of a stout rope with both hands, and then the body vibrates upon the surface of the water like a flag in a stiff breeze,) will send the blood tingling to the extremities, and enable one to sleep soundly. This is far better than to have recourse to the use of drugs. Bromide of potassium has, however, been strongly recommended by Dr. Hammond for insomnia. He says it acts like a charm, diminishing the amount of blood in the brain, and allaying any excitement of the nervous system that may be present in the sthenic form of insomnia.

Dr. John Allen is glad to see that this subject is being discussed, and desires to see a spirit of inquiry manifested. The proportion of deaths by insanity in other professions is far less than in ours, as he has ascertained by inquiry, and there must be some cause for it, which we must find out. We must study nature's laws, and we can't amend or alter them, we must conform to them as nearly as possible. Temporary relief may be obtained from stimulants, but just so far as these elevate the system, so far it falls below in their absence. It takes more and more, and moderation cannot be commanded.

Prof. Shepard has not observed the tendency to insanity among dentists to any such extent as described in Dr. Allen's paper. There are many old men in the profession; one in Boston seventy-five years of age is in active practice. It may be admitted that this class of men do not do as good work as younger men; that is impossible; but they are well men. Many men in mercantile pursuits are taken to the asylums from perplexities of business, but he cannot recall an instance of insanity among dentists. A large majority of them are well men comparatively. The reason that so many of the professions are young men is, that thirty years ago our numbers were small. It is a question whether the practice is so depressing upon life-force. Over work will bring its legitimate result, and those who have fallen within his knowledge have done so from overwork. One esteemed brother, deceased just previous to our last meeting, worked till 3 A. M. in investigating, and carried on a large practice; and on the morning of his death was at work upon an article for this association. The great secret of keeping health is the enjoyment of it, and of one's business; and a man who does not enjoy his profession and go to it with pleasure in the morning, cannot accomplish the best results with the least expenditure. It is the high motive, the idea that one is doing good, that will sustain; the further from the idea of money one can get, the greater pleasure he will find in his work, and the greater immunity from declining health.

Dr. Barrett thinks there is a greater drain upon dentists than upon other professions. It is not the refractory patients that are most exhausting, but those that settle down and draw and draw till we sink down exhausted. No dentist could keep this up as long as the physician can his exertions.

Prof. Flagg is in sympathy with Dr. Barrett. We must make an effort to control patients. He had often diminished the magnetic current by interposing folds of napkins between himself and the patient. It is the contact of skin with skin that does the mischief. Disagrees with Prof. Shepard; there are old men in the profession, but they are easy-going ones; are there any delvers seventy-five years old and in the harness? There are perhaps exceptions, but they are the Von Humboldts. Our calling produces more drain in every direction than any other; it is the constant effort that breaks down, and the love of it does it more than antipathy. Agrees with Prof. O. W. Holmes that it were better for mankind if all the drugs (as they are used, or rather abused) were in the bottom of the sea, and all the worse for the fishes! Protests against the use of the bromide of potassium. It is a treacherous drug,—very good for a few times, but "plays out," and leaves the patient in a deplorable condition. Assafœtida is about as good as any drug for both patient and operator; it is safe and may be used continuously. They sugar-coat pills to make them pleasant, and we must sugar coat our operations. Mingle gentleness with firmness.

Dr. Allen's paper is admirable, and takes irrefutable ground. We overtax ourselves, not as business men do, in the inordinate exertion to make money, but in the legitimate practice of our profession. We break down in an average time of eight years. Rest and a change of occupation are what are needed.

The difference between sleep and anæsthesia is subtle. Sleep is not recuperative; unconsciousness is another thing. In sleep there is turgescence of the brain, but in unconsciousness there is an anæmic condition. When a man dreams of things he has been doing during the day, he had better stop. When we wake up from sleep we feel refreshed, but there is no refreshment from anæsthesia. There is always danger in this condition. The speaker is a strong believer in anæsthesia; it is one of the greatest boons ever given to suffering humanity, and we gave it to the medical profession, which we are all the time helping to the best of our ability. It is a boon, but, like other powerful agents may be and is misused. As in the use of arsenic, it is said that only a little is used; gentlemen say they never give it to unconsciousness; but it must be understood that when a patient is only partially under its influence, every nerve is fully aroused, and the pain is more severe than ever. Believes that the nervous mass is affected and the sooner it is done the better it is. The first sense lost in anæsthesia is that of smell; and it progresses in regular order. When the pons varolii is affected it is a most critical condition,—one next to death. It is not wonderful that when patients have been thrown upon the bridge of helplessness, and then operated upon and tortured there should follow headaches, insomnia, and hysterics. The daughters of leading medical men are in the same condition.

Dr. Atkinson: All that has been said in regard to nutrition has referred to the blood. We fail to see that these are misnomers. The polarization and depolarization are not immediately affected by the breathing of oxygen. He was delighted with the manner in which Dr. Flagg dealt with the subject. We deal with concomitants and not with causes. We have no right to say that we know anything about causes. Anæsthesia and sleep are different,—one is normal and the other is abnormal. When all the oxygen is taken out of the system it is dead. Any agent may be food, poison, or remedy according to the tension of polarity. Do not throw the remedies to the fishes, but throw away our misapprehensions about remedies. We must not take extreme views. What is temperament? Only a polarization of currents. We must oppose kindness to unkindness, be master of the situation, and do good, irrespective of money. We must control our patients; not by the Rarey method, however, for we can't always choke them down.

Prof. Taft wished to correct a possible misapprehension; he did not mean irritability when he said incompatibility in regard to patients. The sluggish patients who manifest no opposition are often the worst. They are repulsive to the operator, and they have the advantage of us, for if the operator was repulsive to them, they would seek some other one. An irritable, fussy patient may be brought down if we have the power to do it, but the other thing is a different thing. Do not think you can dominate all patients; you will be exhausted and broken down in proportion as you do it.

The subject was then passed.

The Executive Committee made a report, recommending that the afternoons be devoted to clinics, which was adopted.

The report of the Publication Committee was read, and the committee were instructed to publish the Transactions for the present year.

The subject of "Pathology and Surgery" was postponed, and "Histology and Microscopy" was taken up.

Dr. Taft read a report written by Dr. W. H. H. Jackson, of Ann Arbor.

The writer stated that in making microscopical investigation of hypertrophied cement, he had been struck by the frequency with which atrophy occurs in connection with it. There are constant changes in the intensity of the two vital forces which build up and tear down the tissues. In a normal state these forces balance each other, but if either gains the ascendency, we have hypertrophy, or atrophy. Through these alternations we are able to prove that the osseous system renews its tissues,—though not so rapidly as the soft parts do. Teeth are often found to have changed from soft and tender, to hard and strong. The lamination of hypertrophied cement shows that there are periods of activity and cessation, as well as places of greater activity of action. Wave-lines show the extent of these actions.

In investigating, the writer, had noticed that the bone-corpuscles were most numerous at the beginning of each stage of activity, and at the points of most rapid growth. What function do these corpuscles fulfill? Are they necessary to the structure? and if so, why are they sometimes absent? Or are they results of pathological conditions, or masses of periosteal tissue enveloped in the rapidly developed cement?

The writer is inclined to the latter position. Too little attention is paid to the minute anatomy of the teeth; attention to it would save injuries and pain. We should work with great caution in excavating the incisors, as filaments of the nerve often extend far into the dentine.

The transverse grooves found on teeth have two distinct characters,—those with rounded edges being formed during the development of the teeth, either as a pathological result or from varying intensity of action of the formative process. The second class with hollow edges is the result of chemical action of the secretions of the mouth.

Prof. Stricker, of Vienna, has been making some interesting observations on the pathology of suppuration. He concludes that pus-corpuscles are formed by the division of the cells of the injured or diseased tissue.

Dr. Taft then read an additional report written by Dr. E. D. Swain, of Chicago.

The committee reported a decided barrenness during the year,—quite in contrast with the few years preceding. Certain observations conducted by Prof. H. S. Chase, the results of which had appeared in the ***Missouri Journal***, were alluded to. The committee had examined Prof. Chase's specimens for themselves, in company with Prof. H. A. Johnson and J. W. Danforth, of Chicago, both histologists of high repute. They found that they presented the appearances shown in the drawings, though not quite so markedly. The bead-like appearances were well defined, and the specimens numerous. All the teeth were taken from persons under seventeen, before complete development had taken place. Prof. Chase advanced the theory that the tubuli had been formed by a linear arrangement of the cells, the proximal ends being absorbed, this process continued forming tubuli. He also claims that the nucleus still remains in the calcified cell, retaining vitality which enables it under proper conditions to renew its action, and that through this vitality the changes which take place in dentine occur,—such as absorption of dentine from beneath a perfect gold filling uniting the pulp-cavity and cavity of decay. Prof. Chase claims that calcification and decalcification take place in teeth, and that the animal portion may be removed without chemical action.

Though the appearances are doubtless present, yet they do not establish the theory; it cannot be considered proved till Prof. Chase shall demonstrate the presence of the nuclei.

Mr. John Tomes has called attention to the appearances observed by Dr. Chase. In his work published in 1848, he describes the linear arrangement of the cells, their divisions and elongation, and the ultimate absorption of the proximal ends, thus forming a continuous tube; the intertubular spaces becoming filled with earthy matter, dentine is formed. The baccated appearance he ascribes to the preserved convexity of the cells, and a constriction at the point of junction.

It will therefore be seen that Prof. Chase differs from Mr. Tomes only as to the disposition of the cell-nuclei. His theories are somewhat different from the generally adopted ones, and stimulate scientific men to the most thorough investigation.

The report then described a very interesting case of a dentigerous cyst. A young lady, aged twenty-three, had her teeth extracted. The deciduous right cuspid was still present. After its extraction, the operator (Dr. Morse, of Richmond, Kentucky,) observed an enlarged condition of the alveolus, and, supposing that the permanent cuspid was in the jaw or that the root of the temporary remained, applied his alveolar forceps and cut through. Examining the mass in the beak of the forceps, he found that he had extracted *sixteen* miniature cuspid teeth. The floor of the cyst revealed the sockets of several of these small teeth. The patient informed Dr. Morse that the permanent right cuspid had erupted as a "tush," and had been extracted some years previous by her physician.

The committee had submitted these teeth to microscopical examination, and the results were embodied in certain photographs accompanying the report. They were found to be perfectly developed teeth as to enamel, dentine, cementum, and pulp-cavity.

The report then proceeded to consider the probable mode of development of these teeth, and arrived at the conclusion that the primary tooth-germ by gemmation produced sixteen daughter cells, each of which became a tooth.

Adjourned.

Evening Session.

The subject of microscopy was still under discussion.

Prof. McQuillen said that he was glad to know that gentlemen were undertaking researches themselves. There is too much disposition in this country to rely upon the observations of Europeans. The microscope is too much of a toy with many. Micro-photographs are very fair, but cannot take the place of the microscope. Nutrition is not a subject for microscopical observation; it is too subtle, and we can observe its stages only. He had once honestly believed the doctrine of "*omne vivum ex ovo,*" and taught it for years,—but is now a skeptic in regard to it. He is not prepared to say that the doctrine is false, but does not feel assured that it is true. We have had apparent beginnings of life from a formless fluid. If we should insist on the necessity of a germ to form a crystal, we should be laughed at by most; but the doctrine is advocated by some. If it is not true, it is reasonable that out of a formless fluid life is evolved *de novo.* The existence of the vegetable is dependent upon its obtaining fluids and gases from the inorganic kingdom. We live upon dead matter; the somatic and molecular life of our food substances is destroyed by cooking. When does it pass from dead to living matter? when assimilation takes place or before? In former times Owen regarded the process of formation in dentine as a centripetal calcification of the pulp. We recognize a series of cells arranged in linear form, which undergo a change, and become odontoblasts, having prolongations between which calcification takes place, forming intertubular tissue. We want the results of original investigations, but after a man has worked hard all day he is unfitted for such duties, and for that reason we have very little of it. Our institutions should be endowed, and so situated that young men of ability may confine themselves to original investigations, and then America may make its contributions to science as do England and Germany.

Dr. Atkinson. It is a pity that the best men know so little. We should be thankful that anybody knows anything. We deal with histology as we would if we should view an audience *en masse*, and attempt to describe it. We shall never know anything about life until we go to the bottom of the matter of function. There is a substratum denominated *atom*, which is the least manifestation of life that we know of. Atoms are endowed with life,—they can't be killed. We have been told that the molecular life of our food is killed. A statement like that is either a *lapsus linguæ*, or it shows an utter misapprehension of the subject. A soms coalesce and manufacture molecules; plasma is an aggregation of molecules. Something must die that something else may live throughout the range of organic life. We have crystalline life, and below that granular life, molecular life, and atomic life. A crystal is regularly arranged granules that are regularly arranged molecules that are regularly arranged atoms.

The doctrine of inorganic or azoic existence will not do in this day. If we wish to know the origin of life, we must define the territory we are speaking of; when the conscious life, has left the body, we have organic, cellular, and molecular life left, and that is the food which we delight to suck from the beefsteak. It is simply a polarization and depolarization of atoms that constitutes molecular mass. We cannot disrupt molecules without reducing to ultimate atoms; there is no such thing as death. Matter means mother. Every one who has followed me knows I have given as complete an answer to the question we are discussing, as that two and two are four. When the blessed love of the Father of light comes in and illumines us, we are endowed with the capability to perceive. The doctrine that "*omne vivum ex ovo*" is pretty old, as old as Harvey. If the protoplasmic mass is an egg, that is true; there are no bricks without mud,—there is no loaf without dough. What do Bastian's investigations prove? Only that these points are so small as not to have been detected before; they do not prove that the germs are not essentially eggs. What is an atom? It is in size about the two-hundred-millionth of an inch. If one side of it is warm and the other cold, there is polarization and depolarization, and that is crystallization. When we have investigated deep enough, we shall be prepared to understand the processes, and they will be as plain as the freezing of water.

The subject was then passed.—*Dental Cosmos.*

TO BE CONTINUED.

ARTICLE IV.

Exposed Pulps.

WM. C. WARDLAW, D. D. S., AUGUSTA, GA.

I had prepared a paper upon the treatment of "exposed pulps" with my method of "capping" them, when your admirable editorial upon the subject, in the May No. of the *Register*, appeared. The principles of treatment are there so clearly and satisfactorily set forth, (the reader is particularly referred to it,) that it will not be necessary, for my present purpose, that I should do more than briefly recapitulate them in this article, in which I wish to direct attention to my mode of "capping nerves."

The first indication of treatment, of course, is to remove and permanently exclude all irritants.

This can only be done thoroughly, by a free and full opening-up of the cavity, so that direct access may be had to every part of it. The condition of the pulp itself will then suggest the therapeutic treatment demanded. If inflamed or congested, sedatives and astringents will be required; if suppurating, Oakley Coles treatment of pepsin is good enough. A systemic regimen may have to be instituted to meet a malarial mercurial, or syphilitic cachexia. But, in a healthy system, the main thing is to protect the pulp from irritation, and nature will come to the rescue, and very soon restore it to a normal condition.

Having, then, freed the pulp from all external irritants, and made such topical application as may be necessary, the next step is to secure this condition, to await the kind offices of nature, or, as the basis for a permanent operation.

With the pulp in readiness, what are the requirements of a nerve-capping? The material must be un-irritating, a non-conductor, accurately adapted to the point of exposure, and hermetically sealing the orifice to the pulp.

You say, "these requirements are easily understood; but the substance to supply them completely is not yet obtained."

I claim that I have such a substance, and that my mode of using it is superior to any of the many methods of "capping" pulps, that I've seen recommended. I do not say that it is not used by others, but I claim that, with myself, it is original and that it has been very successful in my hands. Dr. King's method of the batter of oxide of zinc and creosote with the os-artificial is good. Dr. Francis' method of note paper and balsam of fir, with os-artificial, is good; the method of the egg membrane, I have used, with happy results, isinglass, court-plaster and os-artificial; but none of these modes completely fill the bill.

My material is the common pink base-plate gutta-percha dissolved in chloroform, in conjunction with os-artificial. Notice, the gutta-percha is the base-plate and has its own peculiar advantages.

With the cavity carefully prepared, the rubber dam in position, and all things in readiness, a drop of the solution taken up with an instrument or on a pellet of cotton, is to be applied to the point of exposure.

The chloroform very rapidly evaporates, leaving a thin pellicle covering on the exposed pulp. The evaporation which is very prompt, may be hastened with the air syringe, and the coating may be made thicker, if desirable, by a second application.

Upon this flooring an os-artificial filling is to be placed, which will afford a firm foundation for a gold filling.

We thus have our pulp protected by a durable material which, applied in a plastic condition, has smoothly and accurately conformed itself to the surface of the pulp, is unirriatting and a non-conductor, and is firmly adherent to the floor of the cavity.

With this condition of things preserved, will not nature attend to the balance? We may safely trust her. Very slight co-operation is all she needs. I have great faith in the "viz medicatrix naturæ." Nearly any pulp, however inflamed, short of suppuration, will return to a normal condition if secured from irritation. I fear many pulps are dosed to death with escharotic applications.

The following peculiar characteristic properties particularly recommend this solution. The gutta-percha is so promptly soluble that it can be prepared upon the moment and at nominal cost. It evaporates very rapidly, acquiring the desired consistency directly. It contains so much earthy matter as to form a stratum of appreciable thickness. It is very adhesive, sticking closely to the walls of the cavity. Its pink color renders it readily visible wherever placed,—an important consideration. It is a perfect non-conductor. The chloroform is soothing to the pulp and sensitive dentine. It can be made so thick as to be easily applied to an upper tooth even. And, finally, being insoluble in the chloride of zinc, it cuts off the usually severe pain following the application of the os-artificial. This last, I regard as of great moment, for I believe many pulps succumb to the escharotic effect of the chloride of zinc, which otherwise would have survived.

I had tried, several years ago, to use, in a similar manner, the white gutta-percha solution, obtained at the dental depots, but abandoned it because it evaporated so slowly, it left too thin a film, its color made it impossible to know what was being done with it, and, it was so fluid that it could not be used in upper cavities, except with great difficulty.

I have so much satisfaction in the daily use of this solution for this, and a variety of purposes, that I beg my professional brethren who may have a prejudice against it, or in favor of something else, to just try it for a few times, and I think they will involuntarily exclaim "Eureka." I wanted to give in detail some of these other uses, but the length of this article admonishes me against it. I will merely mention some of them.

I use it, as a temporary filling in sensitive cavities, as a covering over arsenic in shallow cavities, as a temporary expedient in cavities where, for the want of light, time, or other reason, I can't make a thorough examination; in the aching teeth of timid children ("*ne plus ultra*,") in con junction with os-artificial, over nearly exposed nerves, to intercept the chloride of zinc; to protect os-artificial fillings against moisture; to stop a leak through an accidental puncture in the rubber dam; upon a conical tooth to prevent the dam from slipping off, etc., etc. It is in fact, my "Man Friday," without which I cannot get along.

The first I ever saw of the solution, Dr. E. W. Harker was using it for the protection of his os-artificial fillings against moisture, and to him belongs the credit, so far as I know of its introduction in dentistry.—*Dental Register.*

ARTICLE V.

On Tumours of the Tongue.

M. Molliere, Surgeon to the Hotel-Dieu at Lyons, makes the following observations upon some rare tumours of the tongue, (*Progres Medicale, No.* 1, 1875.)

Hydatid Cyst of the Tongue.—L. S., aged twenty-four, a schoolmaster, entered the Hotel-Dien, at Lyons, on September 18, 1874. This young man, who seemed to be of a robust constitution, dated his malady from the preceding March. A pimple then appeared upon the tongue, followed in a few days by violent pain. The pimple was then about the size of a pea, but rapidly increased. Inflammatory symptoms of great intensity supervened. The tongue acquired an enormous size, and for fifteen days the patient could swallow no food. When this inflammation ceased, he found the tumour of the same size as before. It was indolent, but it continued to enlarge, so that after some time he had much difficulty in performing the duties of his calling. When he entered the hospital a round and very hard tumour, about the size of a nut, was seen on the right border of the tongue, its greatest prominence being towards the upper surface. This tumour was well defined, regularly rounded, and indolent. The tongue was siezed with a napkin, and drawn with a certain degree of force upwards and out of the mouth. It was thus rendered motionless, and in this way fluctuation was very distinctly observed. The tumour was diagnosed to be a cyst. On September 12 it was operated on. The point of the tongue was siezed with sharp forceps, and drawn outwards. A longitudinal incision was made in the dorsum, and the dissection carried on. The tumour adhered closely to the lingual tissues, and was deeply imbedded in the muscles among which it had its origin. There was also a deep adhesion to the ranine artery, which was opened quite at the base of the tongue When the tumour was removed, it was very difficult to tie the artery. The wound was united by fine stitches of metallic suture. The patient was put to bed, and during the day was ordered gargles of iced and medicated water. Next day there was slight swelling. The tongue was as large as it had been before the operation, of a blue colour, and ecchymosed. There was no fever, and the temperature throughout the whole treatment never reached 39° Cent. (100.2° Fahr.) On the fourth day the stitches were removed. The clots which had accumulated were pressed out of the cavity, and on September 20 the patient left the hospital with only a small linear wound and slight swelling? He could speak freely, and had no pain. When the tumour was examined, a transparent vesicle with very thin walls was found within. It contained a small opaque point. This point was submitted to microscopic examination, and the parasite was discovered with its suckers and crown of hooklets, thus demonstrating the tumour to be an hydatid cyst of the tongue.

M. Molliere's reason for publishing this case is not so much the rarity of hydatid cysts of the tongue, for this rarity is only comparative ; but because of the circumstances which accompanied it. The parasite must have entered the tongue during mastication, and the inflammatory symptoms were probably due to it. In the first place it acted as a foreign body, and we must suppose that the inflammation ceased when the parasitical cyst had formed.

He calls attention particularly to the method he employed to demonstrate the fluctuation. Its value cannot be appreciated without a trial. It is, in fact, the only way in which the organ can be rendered motionless. The therapeutics treatment, also, he considers to have been the most certain and the most rational. Are we not certain by complete excision thoroughly to extirpate the evil? Total ablation also has the advantage of being much quicker than the other methods—injections, partial excisions, or cauterizations. Finally, he says, the only danger to be feared—that of hemorrhage—is guarded against by the use of sutures. His observations upon this point are, in his opinion, as conclusive as possible, since the suture succeeded in arresting the flow of blood, even when it arose from a wound in the principal artery of the organ. It appears to him that the suture is not sufficiently used as a hæmostatic remedy in operations upon the tongue. He speaks, however only of the metallic suture. It has the immense advantage over sutures of vegetable material, that it covers the affected region with small sharp points, so that the patient instinctively keeps the tongue at rest.

Lipoma of the Tongue.—The patient was an old man, aged sixty. He had on the left side of his tongue a little tumour, of the size of a haricot bean. This tumour, which was seen under the stretched and transparent mucous membrane, was sofa and of a yellow colour. The patient could give no information as to its origin or course. M. Molliere at first believed it to be an abscess or a syphilitic gumma. But there was nothing in the man's previous history to support this idea; and as the author could not dsscover any fluctuation, he concluded that it was a solid-tumour, developed probably in the glands. As it continued to enlarge, he proposed its ablation and proceeded as follows: A hole was made in a piece of cardboard through which the patient passed his tongue. An assistant held it, while the surgeon laid hold of the tumour with Guersant's hemorrhoidal forceps, which had first been made red hot

After eight days the patient left the hospital cured. Histological examination proved that the tumour was a lipoma. Similar small tumors were seen at the base of the organ but as they caused no inconvenience, they were not touched. Lipoma of the tongue is very rare. M. Molliere calls special attention, however, to the method which he used in removing this tumour. It is expeditious, attended by but little pain, and is free from all danger of hemorrhage. He says he has had recourse to it in other instances to remove small cancers situated on the point or edge of the tongue; and thinks that it ought to be substituted for the knife or the ecraseur in all cases to which it is applicable.—*London Medical Record.*

EDITORIAL. ETC.

Salicylic Acid as an Antiseptic and Disinfectant.—The Dental and Medical professions have recently heard so much concerning the efficacy of this agent, that considerable interest has been excited, and many experiments made to test it. Those who claim for it all that it required for such an agent, have heretofore met with no opposition to the views they have expressed, but the other side of the question is now appearing, as is shown by the following article from R. Rother, in the October number 1875, of the *London Chemist and Druggist:*

"In spite of the tremendous *furore* that a number of interested writers are making about salicylic acid, the star of this novel and noteworthy substance is even now declining. Most of the glowing reports extolling its wonderful powers were baseless exaggerations, to say nothing of the pure fictions that were manufactured and circulated regarding the disinfecting properties of salicylic acid. The writer had been using benzoic acid as an antiseptic and preservative of certain decomposable solutions with most satisfactory results, as, for instance, in solution of magnesium citrate, both in the form of a concentrated stock solution four times the officinal strength, and the ordinary officinal state; then the 'cream syrup' for soda water, also a concentrated coffee syrup, one to sixteen for soda water, solutions of citric and tartaric acids, and several fermentable officinal syrups. The first application the writer made of salicylic acid was employed more than the water could dissolve. In less than a week the syrup was covered with an extra heavy and exuberant growth of mould and, several days later it passed into active fermentation. The next trial was with red raspberry juice. After the bruised berries had fermented twenty-four hours one drachm of salicylic was added to a quantity of berries representing three gallons of juice; six hours later the magna was pressed and then the fact became apparent that the fermentation was still active—in fact, from the profuse evolution of carbonic acid, it seemed now to be in its most energetic condition. Another drachm of salicylic acid was now added, but six hours later fermentation had not ceased; and, moreover, from the very perceptible acetous odour, the inference was at hand that the acetic fermentation had also begun. One drachm more of salicylic acid was then added, which either stopped the alcoholic fermentation or this ceased simply from the exhaustion of fermentable material. But twelve hours afterwards it was found that the acetic fermentation was raising havoc with the juice, and an additional drachm of salicylic acid was incorporated. It, however, soon became evident that even now the juice was rapidly spoiling, and the writer, in order to save it in its already deteriorated condition, speedily mixed a part of it with four per cent. of alcohol, and converted the remainder into a dense syrup by the addition of sugar.

The writer found that neither salicylic nor benzoic acid will preserve milk, unless added in excess of the natural alkalinity; a comparatively large amount of either will then be required. A mixture of one pint of milk, one ponud of granulated sugar, one fluid drachm of tincture of vanilla, and five to ten grains of benzoic or salicylic acid, makes a very permanent 'cream syrup;' in fact, such a mixture will remain 'sweet' for several days even in the hottest weather, and the writer has not had a single case of 'sour cream' during the whole season. It was, however, found that a small remnant of milk or "cream', remaining in a large bottle became putrid within the space of a week, and, although salicylic acid was added, equal in quantity to this decomposing mass, the offensive effluvium was not diminished in the least, however prolonged the contact might have endured. This circumstance is ample illustration that salicylic acid is by no means a disinfectant.

The conversion of lactin into lactic acid, then into butyric acid, and ultimately into the more odorous products of putrid fermentation, is either checked or entirely obviated in the presence of a perfect antiseptase—that is, any agency which counteracts the effects of septism, and during which action the antiseptase remains indefinitely intact; but an antiseptase, which is also a disinfectant, must finally disappear entirely when placed into an already decomposing body, since the process of disinfection consists partly and importantly in a chemical disintegration of the various elements concerned. Hence, as salicylic acid does not itself decompose in a putrescent mixture, it cannot consequently be a disinfectant, even if it is to a certain extent an antiseptase.

Prof. Salkowsky, of Berlin, has quite recently demonstrated that salicylic acid, in concentrated aqueous solution, will temporarily suspend the appearance of putrefaction, but cannot prevent its occurrence, and that it has no deodorising qualities whatever. If decaying fluids are mixed with salicylic acid the odour still remains entirely unchanged. There is really no apparent reason why salicylic acid should possess deodorising properties, since such action can manifest itself in three different ways, namely: (1) by a destruction of the volatile products of the decaying substance, as, for instance, through the action of potassium permanganate, chlorinated lime and sulphurous acid: (2) by absorption, as with charcoal and in less degree by various other porous materials, to which also belong bodies producing precipitates in albuminous fluids; (3) by concealing the putrid odour, as with carbolic acid. Salicylic acid is not possessed of strong chemical affinities, neither does it produce precipitates, nor has it an inherent odour. The action of salicylic acid does not originate in a splitting up into carbolic and carbonic acids as Kolbe supposed. The inadmissibility of that presumption is apparent from the fact that salicylic acid acts in weaker concentration than carbolic acid. Furthermore, salicylic acid may be recovered from putrid mixtures by means of ether, but carbolic acid is not traceable under the same conditions. Benzoic acid is a much more powerful antiseptic than salicylic acid. Raw meat chopped up fine or in larger pieces, when placed into concentrated solution of benzoic acid, remained perfectly fresh during a period of three months, the liquid remaining perfectly clear and retaining the odour of benzoic acid. The preservation was apparently absolute for any period. There is no difference between the effectiveness of natural and artificial benzoic acid.

Kolbe had stated, among numerous other myths about salicylc acid, that it is a much superior antiseptic to benzoic acid. The spirit of pecuniary enterprise is getting a fast hold upon the German chemists. Every new wrinkle is twisted into proportions of wonderful importance, and directly a factory is started, by means of which, and elaborate puffs, the general market is flooded with a worthless, or nearly worthless, substance. About the time the enthused multitude returns to sober second thought, the great scientist is enabled to retire from business to the more secluded pursuits of pure science, with a handsome gain, Kolbe's notorious pamphlet ridiculing the new notation and nomenclature simply because it was of French origin, and because Wurtz, in excessive eulogism, pronounced chemistry a French creation, founded by Lavoisier, is a pretty sample of what can be achieved on the field of pure science.

Susquehanna Dental Association.—The semi-annual meeting of this Society will be held at the Central Hotel, Sunbury, Pa., on Wednesday, Nov. 10th, 1875, at 10 o'clock, A. M. Sessions to continue two days.

Excursion tickets will be issued by the Pennsylvania Central, Northern Central, Danville, Hazleton and Wilkesbarre and Philadelphia and Erie Railroads. Orders can be obtained by enclosing stamp, and stating over what route, to the Secretary.

The subject for discussion, "Health of the Dentist."
Essayists.—Drs. C. S. Beck and J. H. Johnson.
Clinic on Thursday morning.
Dr. Cressinger with S. S. White's Engine Mallet.
All sessions are open to the public.

W. H. Hertz, D. D. S., *Recording Secretary.*
Hazelton, Pa.

MONTHLY SUMMARY.

Adulteration of Beeswax.—For a year or two past there has been offered in this market, and most probably elsewhere, an article termed "refined beeswax." It is unusually handsome in appearance and is generally represented as being strictly pure. It may be known by all of it being of a uniform bright-yellow color, entirely free from the sedimentary stratum of impurities ordinarily found in country wax. Its surface is clean and glossy, having no foreign particles adhering to it. On account of these apparent merits, it is usually sold at an advance on the price of the regular article. All of this so-called refined beeswax, so far met with, has been moulded into the shape of oblong blocks of uniform size, measuring about fourteen inches in length, eight inches in width and three in thickness, tapering slightly upwards, and weighing about eight pounds on an average.

The melting point of the refined wax was found to be 146° F., that of pure wax being 156° and that of paraffin from 137° to 140°. Its specific gravity is .929, placing it again intermediate between beeswax, .963, and paraffin, .871. Being thus induced to suspect the presence of the latter body, 100 grains of the refined article were heated for fifteen or twenty minutes with one ounce of sulphuric acid to about 350° F.; several ounces of water were then added; and after cooling a sheet of paraffin weighing 80 grains was obtained, the loss representing the beeswax which had been carbonized by the acid. In order to verify the experiment, it was repeated with a composition of four parts paraffin to one of wax, when analogous results were obtained. 100 grains of pure paraffin, treated in the same manner, were recovered unchanged.

All the best text-books recommend fuming Nordhausen acid for this purpose, and state that an allowance must be made for a portion of paraffin charred by this acid. No one seems to have previously tried the ordinary commercial sulphuric acid, which was really found to be better adapted than the Nordhausen, as all the wax was carbonized and none of the paraffin affected. The test is very readily applied, the only difficulty, and this a very trivial one, being the separation of the carbonaceous matter from the paraffin. It is most conveniently removed by repeatedly melting the paraffin on water, at the same time gently stirring it, so that the black particles can subside.

There seems to be a considerable difference in the mode of contraction, while cooling, between beeswax and paraffin, and this may serve to detect the adulteration, at least when practiced to this extent. Blocks of paraffin are decidedly concave on the top, and the specimens of adulterated wax presented herewith will be observed to be more or less concave on top in proportion to the amount of paraffin which they contain. Pure beeswax appears to be level, and the contraction acting in a horizontal direction and tending rather to the production of vertical fissures.

The optical behaviour is also different; pure wax is quite opaque, while this adulterated article is somewhat translucent, more particularly on the edges.

Although no injury is likely to result from this admixture, it is an evident fraud, as there is considerable difference in the commercial value of the two substances. It may be added, in this connection, whether it is not time for the Pharmacopœia Committee to turn their attention to paraffin, since we have thus again detected it forcing its way into pharmacy under the garb of beeswax, cosmolin, and vaselin.—*Druggists' Circular.*

A Photographic Wonder.—Dr. Ultzmann, teacher at the University of Vienna, lately read a paper before the Medical Society of Lower Austria, on the "Use of Photography in Medical Studies." *Inter alia*, he mentioned, on the authority of Dr. Vogel, that an eruption of small-pox had been made evident by photography twenty-four hours before it actually came out. Although no one could as yet observe anything on the skin of the patient, the negative plate showed stains on the face which perfectly resembled the variolous enan-them, and twenty-four hours afterward the eruption became clearly evident —*Med. and Surg. Journal.*

External Use of Chloral Hydrate.—A writer in the *Canada Medical Record* recommends a solution of Chloral Hydrate in water, from 3 to 5 grains to the ounce, as a substitute for carbolic acid for external use. Its effect on ulcers is prompt and admirable, and a case of eczema was successfully treated by it. In cases of amputation, where the surfaces took on unhealthy action, the solution changed their character and removed the difficulty in twenty-four hours. It removes fetor, is clean and neat, does not stain, and stimulates granulations without destroying them.

Chloral hydrate has also been used in Germany as an antiseptic application in cancer of the uterus. A strong solution—one part to twelve of water—is applied by means of cotton. Dr. Goodell of Philadelphia also speaks highly of it as a purifying and deodorizing agent.—*Pacific Med. and Surg. Journal.*

The Anti-Neuralgic Properties of the Essence of Mint.—In a paper read before the Societe de Therap, M. Delioux de Savinac points out that the essence of mint exerts a special influence on the sensory nerves, which diminishes the abnormal vivacity of their reactions when these become exalted into painful affections. It is comparable in this respect to chloroform, ether, and camphor. Though its high price will prevent its being extensively used in the pure state as an anti-neuralgic and anti-rheumatic, it may be employed in alcoholic solution as an application in the form of liniment, and camphor, chloroform, and laudanum may be added to it with advantage in various cases. Dr. Savignac has found it extremely useful in relieving the pain of pruritus; in alleviating, when employed in the form of injections, the miseries of vulvo-vaginal hyperæsthesias, vaginismus, and neuralgias of the head and face, which are best treated by making a small ball of wool of the size of a nut which has been made to imbibe a few drops of the essence, and rubbing the painful part with it gently. It is then to be covered with a larger piece of wool, and the whole kept in position for a few minutes with the palm of the hand. The success of these external applications of the essence of mint in neuralgias of the head and face, and even in cases of congestive cephalalgia, has been both prompt and permanent. He adds, however, that the cause of the pain must be local for the cure to be permanent, since, if it be dependent on hysteria, or be connected with intermittent fever, or with gastric derangement, the primary cause must first be removed. The remedy seems to have been nlog known in China. For intermuscular and parenchymatous neuralgias, which are especially obstinate, he has tried the following as a hypodermic injection:

Hydrochlorate of morphia, 1¼ grains.
Mint water, 140 minims.
Alcoholate of mint, 15 minims. Mix.

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ARTICLE I.

The American Academy of Dental Surgery.

Special meetings of October 19 and 20th, 1875.—The Papers Read—Addresses—Discussions.

(Reported for the American Journal of Dental Science.)

The American Academy of Dental Surgery held special meetings, in the lecture room of the College of Physicians and Surgeons, New York, on Tuesday and Wednesday, October 19th and 20th, 1875. The regular meeting also took place on the evening of the 19th. There was a morning and an afternoon session on each day. Papers were read, addresses delivered, and discussions held upon questions of special importance to the profession. Mayor Wickham was to have been present to deliver the opening address, but the pressure of official business forced him to be absent.

Letters were also read from a number of distinguished dentists of this country and Europe, expressing regret that unavoidable circumstances prevented their presence.

The Proceedings.—FIRST DAY.

At the opening session, the meeting was called to order by Dr. Geo. A. Perine, President of the Academy, and opened with prayer by the Rev. Hugh Miller Thompson, D. D., Rector of Christ Church, New York. Official business preventing the Mayor from attending, according to arrangement, he sent the following letter of regret:

MAYOR'S OFFICE, CITY OF NEW YORK.
October 19th, 1875.

DR. GEO. A. PERINE,
President Am. Academy Dental Surgery.

MY DEAR SIR:

Unexpected official business will prevent my being with you this A. M., as was my intention. With best wishes for the success and prosperity of the Academy,

I am your obd't servant,
W. H. WICKHAM, *Mayor.*

Dr. Geo. H. Perine delivered the address of GREETING. He said:—

Gentlemen, Fellows of the American Academy of Dental Surgery and Invited Guests:

In rising to address you on this occasion, I find myself face to face with a double duty. To you, Fellows of the Academy, I have to offer my congratulations, upon the advent of this incident in our organic life.

To you gentlemen, who have so kindly responded by your presence to our request that you would unite with us on this occasion, I have to tender the cordial thanks of the body over which I have the honor to preside.

Gentlemen; You are welcome, WELL-COME in a double sense. For while I am glad to recognize among you so many familiar faces of members of my own profession, it is with feelings of special satisfaction that I observe also representatives of the kindred profession,—medicine. Gen.

tlemen it is our design—God willing, to so order it in our advance as a scientific, corporate body, that those sentiments of professional cordiality which should exist between our respective guilds, shall not be smothered, but shall—at least in so far as we can be instrumental in forwarding so desirable a conclusion—become among the dearest aims and objects of our fraternity. And, gentlemen, I am glad to recognize another element in this gathering, which seems to me to betoken that fruition of our hopes which we have most at heart. I allude to the presence among us, to-day, of those younger branches of the professional tree, upon whose present and whose future must rest the advancement of our two professions hereafter; for although I stand before you as it were the representative of calm, sedate and solemn age, and from my hoary pinnacle of years must look with chastened and dispassionate gaze upon these young and daring souls; yet, gentlemen, it is with the sentiment and the full belief that it is upon them, and not upon us, must fall the burden of that progress towards which we are all striving.

And, gentlemen, I am entitled to declare that it is a main and leading object of "The American Academy of Dental Surgery" to recognize and approve and encourage the efforts and the success of our young men. For gentlemen, it is through these young men that the aim and hope to which I have already alluded can alone be made successful. Through them I hope to see such a bond of union cemented between the Medical and Dental professions that they shall become as it were one in fact, as they are now in theory and practice; and that the time shall be near at hand when a Professor of Dental Surgery in every Medical College, and stdents in the art under their tuition, shall give promise to the world of perfection in the two sciences.

Gentlemen, we are fast approaching an era in our national existence, and as we draw near to the solemn celebration of our Centennial anniversary, I think I am justified in the assertion that in no other branch of science or art can we display such marked progress and success as in the science of Dentistry. And not only have we builded here this wondrous edifice of scientific attainment, but, gentlemen, I venture to say, that among all that vast gathering of the inhabitants of lands beyond the sea, who will assemble in Philadelphia next summer, there shall be not one who will not have witnessed in his own city the wonderful and adventurous excellence of the American Dentist.

And this excellence, purely American as it is in all its peculiarities, is not due alone to individual effort. It is due in no minor part to the wide extension, the laborious energy and the far-sighted originality of our system of organized association. Through the attrition of many minds it is that we have accomplished so much in the past; and if I may venture, as the representative of the youngest of these organizations, to compliment those which have preceeded as, I will only say that our ambition is to take up the good wor where these have left it, and to forward it with something of that earnestness and determination which have ever characterized their efforts.

Gentlemen, in closing my remarks, permit me again to congratulate "The American Academy of Dental Surgery" upon this handsome response to our invitations on this occasion. In this connection I would have desired especially to express the gratification with which we could have welcomed the presence of the Mayor of our city. But it is seldom that high civic functionaries can borrow the time from their arduous avocations to represent their constituents in scientific gatherings, and our Mayor in this instance, has been compelled to make no exception to the general rule.

Gentlemen, it is given to none of us to predict the future; but I think I may say, in view of the success of this meeting, that however the science of Dentistry has progressed in the hands of American Dentists in the past, we may look forward with bright hopes to a future of still broader conception, and of still grander execution.

Prof. J. M. Carnochan, M. D., New York, then made some extemporaneous remarks upon dentistry, past and present. He said:

The subject of Dentistry is one of great importance. The sacred ministers of religion in former times were supposed to minister to the physical wants of the tribes amongst which they were placed; often a time the surgical art became more or less linked with the mechanism of the barber; in the course of time it assumed a different phase; it now probably stands at the head of all those branches of science which are devoted to the benefit of the human race. Surgery has become divided into a number of departments, and amongst these is dentistry. The art of dentistry now embraces not only the mechanical use of the instruments applied to the teeth, but also a knowledge on the part of the operator of all the vital functions of the system. The mere mechanical dentist at the present day, would be considered a very unfit member of the dental profession. To dentistry surgery owes one of the greatest boons that science has given to humanity. To Horace Wells, the dentist of Hartford, is due the discovery of Anæsthesia. Dental surgery has done much for general surgery. In the deformity known as hare-lip, for instance, the operation of staphyloraphy is now seldom resorted to, because of the great improvement upon that operation invented by Sterns, the dentist. The dental art is so associated with the surgery of the jaw, that it is difficult to separate the one from the other. The disease known as *tic douloreux* certainly comes under the head of the dental art, and medical men expect to hear of improvements made by dentists in the treatment of this fearful disease.

The dental art has now assumed so important a position, that it must not be excluded from the domain of surgery. It is no longer a mechanical art—it is based upon the science of vitality; and it must and will again become a part of the general profession. There is no seat in medicine but what has been of some advantage to the general art of healing. Dentistry must cease to be an abstraction from this general art. [Applause.]

At the conclusion of Dr. Carnochan's address, the letters already mentioned were read, and then an adjournment was had to 1-30 P. M.

Afternoon Session.

The afternoon session was opened with a paper on "Reflex Nervous Disorders from Dental Irritation." By Alfred L. Carroll, M. D., New York.

This was a very able paper, and was listened to with a great deal of interest. He showed that the pathological territory upon which dental surgery and pure medicine met was wider than was commonly imagined, and he urged upon young physicians that in the words of a most observant medical writer, (Tanner,) the importance of investigating the state of the mouth in all cases of neuralgia about the face and head, headache, deafness, amaurosia, facial paralysis, epilepsy, abscess of the antrum, and hypochrondriasis, cannot be too strongly insisted upon; while to the young dental surgeon he commended the propriety of recognizing the nervous system as an appendage to the teeth, and bearing in mind the reflex disorders which, in certain temperaments, his very skill too specially applied, may possibly perpetuate.

The paper was so logically constructed—the reasoning so close, that any attempt to give an abstract of it does injustice to the writer.

A discussion upon the subject of the paper followed, and then Prof. Wm. A. Hammond, M. D., medical department University of New York, was introduced. His subject was

"THE RELATIONS OF DENTAL SCIENCE TO MEDICINE."

He said: Mr. President and Gentlemen of the American Academy of Dental Surgery. The cordial sympathy of the medical profession is with you in the effort in which you are engaged. Medical science embraces within its fold all those who are devoted to the alleviation of the sufferings of mankind; and if we look to the ills which will follow derangement of the teeth, and to the good which is accomplished by their cure, we are bound to accord to dentists a very high position amongst those engaged in similar labors. At one time there was no difference between the dentist and the surgeon. This was undoubtedly disadvantageous to their patients. If there is anything which tends to the advancement of any one department of medical science, it is the separation of that department from the mass by those who take a special interest in it. Prior to the separation of dentistry from surgery proper, not much progress was made in any scientific department. Here is a volume some three hundred years old, written by Ambroise Paré. Let us see how they performed operations in his day.

[The Doctor proceeded to read extracts from the volume, showing the state of dental knowledge three hundred years ago. From the stand point of modern science, many of the old surgeon's directions, (such for instance, as the taking of oil of vitriol into the mouth for toothache,) seemed ludicrous indeed; while his quaint remarks produced much laughter.]

Gentlemen, I think dentists should not separate themselves from surgery proper. We may differentiate too much. In striving to enlarge the bounds of science, have we not, to some extent, wandered from the pathway through it? That there is no actual difference between medicine and dentistry is very evident. The question arises is it wise to have dental colleges? Would it not be better to have chairs of dentistry in medical colleges, where the student would not only become proficient in dentistry, but obtain a full knowledge of medicine—without which no man can become an accomplished dentist. [Applause.]

That brings me to the consideration of the relations which naturally exist between these two departments of science. We have one common ground between us—the fifth pair of nerves. All surgeons work upon it more or less—all dentists work upon it entirely. Is the dentist who is unacquainted with anatomy, physiology, pathology and therapeutics, competent to point out to his patients what they are to do? You will agree with me that he is not.

The relations of medicine to dentistry are not only very manifest as regards the prominent diseases which we have to treat, but likewise as regards the contributions which have been made to the common science of healing. Considering the limited field that the dentists occupy, they have contributed more to anatomy, histology and therapeutics than any other class of medical men. We leave the histology of the teeth entirely to the dentists. Dentists have been large contributors to our stock of knowledge relating to diseases of the teeth, jaw, palate and tongue.

The differentiation I spoke of is a bad move. At the present day no such differentiation should be made. It is not carried in Europe to the same extent that it is here. A surgeon who prefers to practice one branch of surgery is just as much a surgeon as if he practiced general surgery. A surgeon-dentist is as much a medical man as a general practitioner.

Discussion.

Dr. William H. Atkinson, New York, said: Gentlemen, when it comes to differentiation between the two professions as to whether I shall call myself a medical man or a dentist, I will stand with the dentists. But lest the medical gentlemen present should not apprehend the warm affection I have to all interested in medicine, I would like to explain. In an address I once delivered, I said that I for one would require candidates for dentistry to be first A. B., next M. D.'s, and then we would give them dental skill, and finally bring them to a proper institution to be trained in dental surgery. We cannot be perfect, but we can advance towards perfection.

Dentistry has no reason to blush in the face of medicine. The army records show that the surgical operations of the dentists showed those of the best surgeons. A pupil of mine, who has passed "behind the curtain," once performed in the army, the operation of amputation of the hip joint, and so dexterously was it done, that several of the surgeons came up and complimented him upon it. Said one, "That is not your maiden operation by any means!" "You have made that operation many times before; for there is no man living who could have made it without having gone over it again and again upon the living body." He had never performed the operation upon the living body before.

Dr. Howard, New York, said Dr. Atkinson's remarks come home to me in regard to the delicate skill which the dentist is called upon to exercise. Prof. Darling, of the medical department University of New York, once told me that those students who had experience in the dental art made the best surgeons that they graduated from their college. The delicate touch of the dentist caused by experience, and we recognize this touch in every operation we perform.

Dr. Miles, Philadelphia, said the touch spoken of is a most radical accomplishment. Some men are unfitted by nature to acquire it. How often do we hear the remark, "He is so rough, I will never go back to that dentist!" The very touch of the man is repugnant, and although he may have done his work well, he is disparaged because of his awkardness.

Dr. John M. Riggs, Hartford, Conn., said the surgeon must be born a surgeon. A gross-minded man never can make a good surgeon. The motto of the poet applies here —*poeta nascitur non fit.* This is eminently true of the dentist. At the present day, we need the nicest manipulation. The dentist, as well as the surgeon, must have his eyesight at the ends of his fingers.

The next paper read was entitled, "The Tooth Brush as a Prophylactic." By Abram Robertson, M. D., F. A. A. D. S., Newport, R. I. The paper was read by Dr. Merrill, for the author, who is blind. A discussion upon one or two points raised in the paper followed, and then the meeting adjourned, to reassemble at the house of the President, 50 W. 35th St., at 7-30 P. M.

TO BE CONTINUED.

ARTICLE II.

Pyæmia the Result of Alveola Abscess.

BY W. T. CRUTCHFIELD, M. D.

The journals contain numerous wood cuts presented for the purpose of showing the effects of gum-boil or technically speaking alveolar abscess, and illustrating articles depicting the evils attending this apparently simple trouble—such for instance as deformity of the face, inability to masticate, defective sight, loss of teeth, and such like phenomena; but these I regard as minor points when we consider what may be the final result of such a disease. What accoucher ever goes to the bedside of a lying-in woman who does not apprehend some danger besides that of parturition? If he be a well versed obstetrician he is aware of the dangerous sequelae attending such cases, and is very particular, (however simple the operation may be) to ward off all complications. Now, to be as laconic as possible, let us glance at that part of the science that we are most interested in, oral surgery, and observe the dentist under similar circumstances: A patient presents himself complaining of odontalgia, say of a molar. The diagnosis may show that there is pus around the margin of the gum in the alveoli or an exposed nerve. If there be pus around the margin of the gum, an incision is made,; if in the antrum of highmore, the antrum is perforated by extracting the tooth and carrying the instrument into the gomphosis through the parietes of the maxillary sinus, thereby allowing the pus to exude. If the nerve be exposed, and no destructive inflammation present, the practitioner actuated only by his own judgment, (regardless of what the patient may desire,) will at once cap the nerve with some anodyne, and lay as it were the foundation for filling. But how often it is that the dentist will put his reputation in jeopardy to gratify the whims of irritable people; for fear of displeasing them he will destroy the nerve, thereby leaving a dead tooth to act as a foreign body to the alveoli. The next step may be to fill the tooth which is generally accomplished with the aid of an assistant, who, as the gold is being inserted hammers away with a two ounce mallet, striking about a half pound blow each time. Now there is no doubt in my mind, that this force not only causes irritation, but in many cases periostitis which combined with the efforts of nature to throw off the dead tooth, (as the tendency of nature is to throw off all foreign bodies,) sets up no little inflammation The result may be suppuration and great suffering, and in this manner the deformities we have alluded to may be caused. But let us go deeper into the subject. According to some of the most scientific physiologists, we learn that pus corpuscles enter the circulation. Tthere is no doubt in my humble opinion but that this theory is correct, and from such a cause the state most dreaded by the surgeon—that of pyæmia is induced. This, however, is by no means always the sequence of events, yet 'tis well to ward against a disease that has baffled the skill of the most eminent of the medical profession and the prognosis of which may be said to be that of death, ninety-five per cent. dying.

SELECTED ARTICLES.

ARTICLE III.

Teeth and Toothache.

In our last number, it may be remembered, we published a brief memorandum, by Dr. Duckworth, on the value of bicarbonate of soda for the relief of toothache.* Dr. Duckworth's recommendation has brought more than one other capable correspondent to the front, and in the current issue of *The Practitioner*, some little space is devoted to the matter. As the subject is one in which very many chemists and druggists, no less than medical men, are greatly interested, no apology will be necessary for treating it in our pages. **See Summary.*

Dr W. B. Holderness, of Huntingdon, writes:

"I see Dr. Duckworth speaks very highly of the use of bicarbonate of soda for toothache. I have for a long time very frequently been successful in giving patients relief by stopping tooth with a paste made in the palm of the hand, by dropping on to a good pinch of the bicarbonate of soda as much tincture of opium or of the vinum opii as the soda will take up, working the whole into a paste, and putting into the tooth." This hint may possibly be useful in some cases, but Mr. J. Smith Turner, M. R. C. S., and dental surgeon to the Middlesex Hospital, offers a far more complete and useful contribution to the discussion. He holds, and as we think, not unreasonably, that while the employment of bicarbonate of soda will not unfrequently be attended with great benefit, to suppose its application will invariably produce the desired result may lead to unreasonable disappointment. The term toothache is applied indiscriminately to all pain situated in or around the teeth, but the disturbance may arise from different causes. The pain in Dr. Duckworth's case evidently arose from the covering of the tooth-pulp being insufficient to protect it from the action of the saliva, or from the exposure of the dentine to the secretions of the mouth through the loss of its natural covering, the enamel. Hence the subsidence of pain on the use of the antacid. The same application is of great use where the enamel structure is feeble, and where numerous defective spots are present, as is frequently seen in young phthisical patients; also in children where there is a general defective condition of the first teeth, proceeding it may be, from neglect or from defective development, or from some disease of the mucous membrane; and in pregnant women, in whom the teeth are frequently found decaying round the base of the crowns in a line with the margin of the gum. That the toothache from which such subjects suffer is due to a vitiated condition of the fluids of the mouth may be inferred from the sudden access of pain so frequent after eating or during sleep, and which is so often ascribed to increase of temperature, or to the increase of circulation in these parts owing to the recumbent position, but which is speedily relieved by the use of a tepid solution of soda bicarbonate. Mr. Turner then continues: Some of the conditions inducing toothache are equally patent or equally obscure to the general practitioner and to the specialist. Ulceration of the membranes of the mouth, for example, would be at once observed; while irritation of the dental nerve in the absence of a visible cause, could only be diagnosed after careful and extended observation, and perhaps some unsuccessful efforts in treatment. There are, however, conditions, and suffering and consequent constitutional disturbance which the general practitioner should be able to ameliorate until such time as special skill be available. A decayed tooth may give pain although the tooth pulp be not exposed. The alkaline lotion will not give relief, and if the saliva be tested it may be found normal. The cause of the pain must therefore be sought in the tooth itself. The decayed dentine is an irritant; this ought to be removed at least partially if not entirely. To do this without exposing or wounding the tooth-pulp is a delicate operation, and a man not in daily practice could not be expected to accomplish it completely; still, enough may be done to serve the immediate purpose. A small mouth-glass and a few excavators, such as are to be had at any dental depot, are all that are required in the way of instruments. Their cutting edges should be round or spoon shaped—if they have any sharp angles they are much more likely to wound the tooth pulp. The cavity should be syringed with tepid water and that may be sufficient; but there is generally a quantity of soft dentine which should be removed if possible. The cavity should be dried out with cotton wool or some other absorbent, and a small pallet of wool moistened with carbolic acid and glycerine should be placed in it, and over this a piece of wool partially moistened with mastic (white hard varnish answers admirably) should be packed. The packing may be accomplished with a blunt probe, and the pressure should be light and not in the direction of the pulp cavity. This will serve till a permanent plug can be introduced, but should not be trusted beyond two or three days, especially in cavities between the teeth.

If the cavity be on the masticating surface of a tooth the wool should be free from pressure on the occlusion of the antagonizing teeth. If it be an interstitial cavity, the gum beyond the margin of the cavity should be disturbed as little as possible, unless it has grown into it, when the wool should be packed with a view of pushing the gum out. If the margin of the gum be left projecting into the cavity, its secretion will become abnormal, owing to the irritation caused by the wool; the cavity will be inundated with the secreted fluid, which will have no way of escape, and the discomfort of the patient thereby aggravated rather than relieved. If possible the wool should not be allowed to depend upon support from the adjacent tooth for retaining its position, as the pressure is likely to separate the teeth, when the plug will leave the walls of the cavity, and so matters will return to their original condition. The wool used for this purpose should be deprived of its greasy character; hence the pink wool, which has been cleansed before dyeing, is best for use.

Toothache may arise from an exposed tooth-pulp, and in such a case the same course of syringing and cleansing should be pursued as already laid down, and some application used which will subdue the irritation of the pulp, applied as in the former instance, and covered over with wool and mastic. Creasote is an old and deservedly a favorite remedy for such a condition of things, but it should be pure wood creasote, as that which is made from coal-tar is very likely to act as an irritant. The following mixtures are recommended for use in place of creasote, and if complication be a merit they have that advantage:

℞ Acidi carbolici solutionis saturatæ
Chloral hydratis sol. sat.
Tinct. camph. co.
Ext. aconit. fluid ää one ounce.
Ol. menth. pp. half ounce.

℞ Chloral hydrat. one drachm.
Aqua fl. half ounce. Misce et adde.
Tinct. aconiti (Fleming) xv. drops.
Chloroformi
Ætheris
Spt. vin. rect. aa xx drops.
Liq. opii. sedativ.
Ol. caryophyll aa two ounces.
Camphor. one and a half drachms.

This last I have found very useful.

Pain may arise from inflammation of the periosteum, and may be situated in an otherwise healthy tooth which has been jarred or wrenched; such cases are not uncommon in the game season from shot or bone splinters getting between the teeth during mastication. Or it may come from a tooth carrying a large mass of metal stopping, having been subjected to unusual conditions, such as exposure of the side of the face next which it may be situated in riding against wind or rain. A low state of health, constipation, exhaustion after violent exercise or prolonged occupation, rheumatism, scrofula, or syphilis may all produce this inflammation. The gum surrounding the affected tooth is visibly inflamed, and the tooth is tender to the touch, and becomes elongated and loose. The degrees of inflammation are various, and in its early stages may be cut short by wiping the gum dry, and frequently applying tincture of iodine of double strength all over the inflamed part. A piece of cotton wool soaked in water as hot as can be borne, and laid between the gum and the cheek, makes an excellent poultice, and if accompanied by a slight aperient, is almost sure to give relief in a chronic case. The constitutional treatment required must be obvious to medical men who have much more command over their patients in the administration of general remedies than the dentist; but I may mention that there is no medicine more likely to cut short in its early stage an acute case of periostitus connected with the teeth than five grains of Pil. saponis co. Two leeches applied to the gum over the affected tooth have repute for doing good, but in some cases prove very disappointing. If there be marked swelling of the gum towards the apex of the affected tooth, lancing is the best thing that can be done, but to be effectual it must be done thoroughly. The instrument should be strong as well as sharp, and capable of cutting through the alveolar plate between the gum and the tooth. Before lancing, Mr. Tomes recommends that the gum should be painted with equal parts of tincture ot iodine of double strength, and Fleming's tincture of aconite.

Teeth may become tender around the neck from recession of the gums, or from an artifical case of teeth being attached to them. The exposed parts of the tooth should be cauterized with nitrate of silver, and if a metal plate have to be worn again immediately, a layer of tissue paper ought to be placed between the cauterized surface and the metal. As the nitrate of silver should be allowed to remain on the tooth a few minutes in order to prove effectual, the cheek and tongue and saliva should be kept away from it as much as possible by holding some ordinary cotton wool round the tooth. When the wool is withdrawn a strong solution of salt should be used immediately, to convert any free nitrate into an inert chloride. Unfortunately the nitrate of silver cannot well be used on the necks of front teeth where a ring of sensitive decay is often found, but it is a valuable remedy where appearance is not in question.

The after pain of an extraction may be modified by washing away the blood-clot and lightly plugging the alveolar cavity with wool saturated with

℞ Acidi carbolici glacialis
Liq. potassæ aa one drachm.
Aquæ dist. one ounce.

as recommended by Mr. Tomes in his "System of Dental Surgery."

From the foregoing remarks it may be inferred that there are degrees of inflammation of the tooth-pulp and of the periosteum. As the treatment of subacute inflammation of the tooth-pulp is very limited and quite incomplete unless the tooth be properly plugged; so in cases of acute inflammation of that organ, the general practitioner can only relieve the patient temporarily, that is, if the tooth is to be saved. It may be well however, to point out that subacute inflammation may arise from injury by mechanical violence or from the masticating surface of a tooth being denuded of enamel even to a very small extent. The tooth becomes troublesome, and frquently reminds its owner of its existence when subjected to thermal changes, or even the ordinary work of mastication. If, on careful examination of a tooth so affected, there be no signs of structural defect observed, search should be made for a decayed tooth elsewhere. When this is found, a process of examination, such as tapping with an instrument, or probing the decayed part, or directing a stream of cold water into it, may start all the symptoms complained of in an intensified form. In rheumatic people and people under the influence of mercury, the irritable state of the teeth is often found. In acute inflammation of the tooth pulp the history generally extends over a long period. Different substances have annoyed a tooth in which a cavity has been known to exist a long time, but which, according to the patient, has always remained the same. Sweets or bitters, heat or cold, have every now and then caused uneasiness, but when these disturbing causes have been removed the pain has ceased. But at length the periods of cessation have diminished, and the length and intensity of the attacks have increased, the pain radiates from the tooth to the other teeth and over the side of the face, and assumes a throbbing character. These attacks last several hours and then suddenly subside, but surely to return again, sometimes without the smallest apparent provocation, or if the patient lie down. This will go on for a shorter or longer period and varying intensity, according to the constitutional state of the patient, till the pulp dies. The next state of the tooth is the commencement of an alveolar abscess, which, if not attended to may involve the removal of the tooth and even of a portion of the alveolar plate, or even further mischief.

In chronic inflammation of the tooth-pulp the pain is less regular in its advent, shorter in duration, and less severe than in acute cases. The peculiarity of most importance is the straggling neuralgic pain which is rarely referred to a definite centre. If any tooth be specified as its seat, it is not unlikely to be a sound one, but even its being decayed is not sufficient in itself to condemn. In fact, the tooth which is nearly destroyed by cariis is not so likely to be the offender as one which is in a better state of preservation. The careful application of a blunt probe to the floor of the cavity will readily detect the irritated nerve, which should be treated as already described, or the tooth removed if worthless.—*Monthly Review of Dental Surgery.*

ARTICLE IV.

Suggestions.

BY WM. C. EASTLACKE, D. D. S., BERLIN, PRUSSIA.

[Read before the American Dental Society of Europe.]

We have heard of travelers, visiting for the first time, new lands and new scenes, who, under the enchantment of first impressions, and in the enthusiasm of newly acquired knowledge, have entered into detailed accounts and critical discussions, which would have been widely different, had they waited until the first flush of observation had vanished, and moments of more experienced judgment had toned down their enthusiasm—and yet, in the innocence of their hearts they have imagined that what they did not know was not worth knowing.

Thinking of these, recalls to our minds our "maiden innocency" in the early years of the practice of our Profession: the magnitude of questions then hastily solved, the subtle delicacy of labor then unrealized, in fact, our blissful ignorance of the lights and shades that only twenty years of hard practice and unceasing labor have betrayed.

With each year the love and admiration and enthusiasm for our Profession increases, and yet, it is with a sense of modesty, that we venture to give some details of experience, hoping they may throw some light on our onward course.

Without reference to the favorable or questionable results that may follow the filling of teeth with the various materials now in use, we simply would call your attention to the special cases where *Gold* (the purest of all metals) is employed as the preserver.

A word, first, upon the detection of decay. We need warning in regard to this, for we have so often seen mouths, fresh from the hands of the operator, and judging by the work, the professional brother was skillful in manipulation; accessable cavities were carefully attended to—yet, alas, the patient dismissed with the most important work neglected. We have seen the patient so discouraged, and incredulous too, until we have proved by actual demonstration the existence of decay.

How frequently whilst engaged upon a mouth we are surprised by the discovery of defects, that on first examination we had not suspected. We have had teeth pronounced sound by one operator, reveal to our closer scrutiny a highly decomposed condition.

Now, if we have a right comprehension of our professional responsibility, the first duty is to detect decay, and this is the stepping stone for securing the confidence of our patients—in fact, is the "key stone" to success, and, whether we work for high or low prices, or whether we are, from charitable motives, acting for the good of humanity, the same pure principle should actuate us and the same invariable search be made.

The turned point of a nerve broach should be well used, and when there is any doubt, the operator should not hesitate in restoring to the revolving disk; so cutting the teeth as not to destroy the contour if possible, and yet better cut than remain in doubt. No harm can be done, but often, in skillful hands, much good can be realized by preventing decay.

We have seen teeth miserably filled by English barbers, long years ago, though unsightly, still good—and the saw-shaped teeth of the fashionable South Sea Islanders are well know for their soundness.

We are not advocating the unnecessary cutting of teeth, and urge that the greatest judgment and skill should be exercised, but are advocating that the search for decay should be made with cautious, but unfaltering perseverance.

The wedge may take the place of the disk and very properly too; wedge and disk are both necessary and safe accessories in skillful and careful hands; and patient observation whilst engaged upon a mouth will often surprise us into new lines of labor, that hurried inattention would never discover.

We have cause to congratulate both ourselves and patient, when our search reveals only perfection.

And now for the preparation of cavities, and here should be the extreme test of skill; for although recent inventions have lessened labor, they only seem to increase the necessity for skillful manipulation and conscientious care.

Not long since we saw it stated in one of the dental periodicals, that "the engine had been the cause of many exposed nerves." With regret we must answer the engine has been the exposure of many bunglers and careless manipulators who are responsible for our Professional honors.

A nicety of touch is indispensable, and not the engine, but the operator is in fault when a pulp is needlessly exposed. In the use of this beautiful assistant, engineering skill is requisite.

Another suggestion may not be misunderstood, viz: Our appointments must not clash—time must be allowed, quick work is well enough when the purse alone is considered, but in cases (which frequently occur) when two or three cavities can be better prepared at one sitting, that is, when better work can be accomplished by thus giving *room* and *light*, then time, undisturbed time, is of the utmost consequence. Although, rather than over weary the patient, one sitting may be given to the preparation of the cavities, and another for the introduction of the gold, the cavities during the interval being filled with creosote and mastic.

Shall we take an example? Notwithstanding, we realize the difficulty in properly demonstrating by words that which would be so much clearer "in hand," but we will endeavor to give you our own " modus operandi " as clearly as possible.

Let us take then for example, the anterior proximal surface of the first superior molar, which is found defective. Also the second bicuspid is found badly decayed on both anterior and posterior surfaces, embracing that portion of the crown between the cusps—and so, correspondingly, is the first bicuspid defective. Examination betrays these cavities as extending beyond the margin of the gum, and so advanced is decomposition, that to make perfect work, we feel the necessity for *seeing clearly all sides of each cavity.* To attain this we begin with the disk and separate well the line of our separation extending from the cervical walls —separating first the second bicuspid and first molar, then the second and first bicuspid, then the first bicuspid and cuspidati. This opens up our work.

The next step is the application of the rubber-dam to the four teeth. Here we have surmounted a difficulty that at first we felt was too discouraging—but gentle persistence has made us expert in its application, and to-day we apply it more readily, and with greater facility, than the napkins of olden time. Now that the rubber is securely adjusted, we can carefully look at the work before us. We excavate then the first bicuspid and can see our way clearly to the anterior proximal cavity in the second bicuspid. Pleasantly surprised with our success, we proceed to excavate the second bicuspid, and with its completion, we have an *unobstructed view* of the anterior cavity in the molar; with what comparative ease is the excavation of this accomplished. In actual practice, we should at this juncture apply the temporary fillings and release our patient, being very willing to postpone the introduction of gold for twenty-four hours at least—but, with your kind indulgence, we will insist on our patient sitting still, and proceed with our work.

Look once again at what is accomplished. Of *every portion of each cavity we have an unobstructed view* and *this* is the advantage we wish to hold, until the conclusion of the operation ; therefore we begin first upon the cervical wall of the molar cavity to introduce the gold. Our retaining points have been secured without difficulty, and the little camel hair brush has swept everything clean before us. Our speculum is gently adjusted, so that the cavity appears in the front of the mouth, rather than in the molar.

But to condense. With ease and rapidity we begin upon the cervical wall of the molar cavity ; but before building too high, we turn to the cervical wall of the posterior cavity of the second bicuspid, and progress with equal facility, until a firm foundation is secured ; then, resuming the filling of the molar, we complete, to our entire satisfaction, and smooth the surface a little so that the gold will not adhere as we proceed with the posterior second bicuspid cavity, which is soon brought along to that part of the cavity lying between the cusps. The anterior cavity is then taken in hand—our work all the time becoming lighter—these two fillings are united by the crown which is then the key that locks each of the others in their places, only the first bicupid remains; we begin on the cervical wall of its posterior cavity and work as smoothly as oil. The result gives us unqualified pleasure, for there has been no hitch anywhere—not a drop of moisture—our patient has actually taken a glass of wine during the operation, and the monotonous tones of the light steel mallet (delicately used by our skillful Japanese,) have put the patient to sleep, whom we awaken with the good news that the work is finished.

In the case that we have had in mind in this statement, the walls of the cavities were so thin we were compelled to cut them away to secure permanency. The question arises, shall we make contour fillings here or not? we know of no other answer, save that this must be left to the judgment of the operator. Contour fillings at times are inadmissible; again, at times, they are necessary; but in the case just described, well-rounded fillings, without any attempt to contour were considered the most advisable, leaving them self-cleansing, that is, with the V shaped separation, which in case of proximal fillings is mostly the best rule. Since the introduction of the rubber dam, the cervical walls, despite large fastoonsof gum, can be so left that food will not crowd between the teeth, thereby rendering the separation objectionable. When such inconvenience occurs we unhesitatingly pronounce it the fault of the artist.

The finishing and polishing of these fillings are so simplified by modern improvements, it would be superfluous to refer to them; and it matters but little as to the gold. It not unfrequently occurs that both light and heavy gold are used in the same cavity; also a thin flooring of oxy-chloride is made before introducing the gold.

Personally, we have for a year or two constantly employed heavy gold, never using under No. 20.

Laminated fillings of heavy foil seem to us the best, (the gold being moderately adhesive,) but this statement is made with all due respect to those of our colleagues who constantly employ light foils, and whose lasting and artistic work is the best evidence in their favor.

The imperfect description that we have just given is the way we treat seven cases out of ten, when the condition of the teeth and patient warrant such a " clean sweep." We know it takes time and scrupulous attention, but the result is most beautiful.

Should the teeth be hyper-sensitive, excavating with the rubber dam facilitates the work, and is a relief to the patient, whilst an application of creosote or carbolic acid with mastic, as temporary filling, has a tendency to reduce the highly sensitive condition of the dentine.

Our work is of too serious a nature to object to the time and care required. Permanent results may be justly anticipated, even though " there is no rule without exception."

And now a word in conclusion in regard to the dread attending dental work. Kindness and forbearance are the indispensable characteristics of a true dentist. An observing physician has an intuitive sympathetic knowledge of his patient, and works accordingly. Even the most nervous will submit without complaint to the removal of the most sensitive dentine by the hands of such an operator, when they could not be induced to enter the office of another.

Our rooms should be so arranged as to take away the suggestion of pain, not making anatomical museums of our offices—exposing instruments, &c. We have no objections to dental museums, but let them be in rooms set apart for the purpose, not where the trembling patient can connect them with anticipated horrors.

We have even sent away our famous dental chair, and operate at a little easy parlor chair, sitting beside our patient on a low light cane-seat stool. Nearly twenty years we stood by improved dental chairs, but find the change we have mentioned far more convenient. Our office presents the appearance of a pleasant sitting-room or library. And the pleased smile of our patients well attests their astonishment and gratitude, whilst that *awful chair* is a remark we never hear.—*Pennsylvania Journal of Dental Science.*

ARTICLE V.

The American Dental Association—Fifteenth Annual Session.

THIRD DAY—*Morning Session.*

The association was called to order at the usual hour, the president in the chair.

A motion was offered providing for the appointment of a committee to confer with a similar committee of the American Dental Convention in regard to a joint meeting next year at Philadelphia. Laid on the table.

On motion of Dr. J. H. Smith, a committee was appointed to draft appropriate resolutions in regard to the death of Dr. Hill, of Norwalk. Carried, and Drs. Smith, Abbott, and Harlan appointed

The subject of "Dental Chemistry" was then taken up. This subject had been opened on the previous evening, before adjournment, by the reading of a report from the committee by Dr. H. A. Smith.

We give the following synopsis:

The report first alluded to a subject which had been investigated during the past year by Dr. S. B. Palmer, a member of the committee: viz.: "Chemical and Galvanic Action upon the Teeth and the Materials used in filling." Dr. Palmer assumed that many cases of failure after careful filling are due to an electro-chemical decomposition of the tooth-bone, induced by a current set up between the tooth-bone and the filling material He claims that caries is a result of chemical action, and that fillings merely prevent it by shutting out the fluids from the cavity. He believes that in some specific cases other materials than gold will be more effective in arresting this action. The circumstances which seem to give support to this view are, that the latent electricity contained in all matter is liable ot be developed, under favorable conditions (as in a fluid of a certain character,) into a current; and this effort to restore the equilibrium will result in a loss of both form and texture in one of the elements. Changing one of the elements in a battery for one of a higher order will cause a reversal of polarity; a change of the solution from acid to alkali also changes the polarity. Tooth bone and filling materials stand in the following electrical order when tested by the galvanometer, with saliva for the fluid; gold, mercury, oxychloride, dentine, tin, amalgam. In weak acid the order is reversed in some of the elements, and gold and dentine stand at the extremes of the list, the latter becoming the positive element or element acted upon. Between the materials at the extremes of the list the greatest action will take place, and between those nearest each other the action will be least,—so slight, in fact, that a change of fluid, or even a change of temperature in the same fluid, will cause a reversal of the action. In an abnormal or porous condition of the tooth-bone, gold by reason of its negative properties, supplies a decomposing current, while the lower grades of filling materals being more nearly upon the same plane of equilibrium with dentine, less action is produced and less breaking down of the tooth-structure. Tin not only arrests decay mechanically, but in frail, chalky structures acts as an antacid element, arresting the current. Gold is best in a well-organized tooth. Oxychloride, though nearly neutral as regards tooth-bone, is subject to chemical action itself, and hence not permanent. Amalgam stands higher in the scale, and, like gold, is liable to excite a chemical action. If there is not a perfect combination the mercury will be acted upon by the current induced by the finer element, and the effect of such action is visible in the fine pits which we see upon the surface and edges of the plug. Any attempt to make the amalgam finer is, therefore, a step in the wrong direction.

The report then touched upon the amalgam question as presented in the late papers of Drs. Hitchcock and Bogue. It was stated that while the physical properties of amalgam are of the greatest importance, yet the chemistry of amalgam must take precedence; for though we might obtain an article free from expansion or discoloration, yet if these compounds affect the system injuriously, the question of their use would be at once settled.

The experiments of Dr. Bogue where then alluded to, by which it was shown that three months of chemical test failed to materially diminish the weight of the test-plugs; and also that the fluids which contained the teeth and pellets, upon being tested for mercury, were found free from it. From these results Dr. Bogue had concluded that almost any amalgam, if used intelligently, could be employed without danger to the general health. The different conclusions reached by Drs. Palmer and Bogue indicate irreconcilable differences of opinion; but when opinions are based upon demonstrations and are free from prejudice, progress is being made, and ere long the question may be settled.

Prof. Cassidy, a member of the committee, also contributed some observations upon the subject of bleaching teeth. He reviewed the chemical agents which cause discoloration in decayed teeth; the precipitated sulphides, being mainly insoluble, are considered as a principal source of discoloration. The writer considered that teeth can in general be restored to a normal color; but caution is necessary in the use of bleaching agents, else they may effect the tooth-structure injuriously. The most successful treatment is found to be the application of chlorine gas, which is generated in a small retort or flask, by the action of hydrochloric acid upon the black oxide of manganese. Upon applying a gentle heat the chlorine will be developed, and may be conveyed to a receiver or bottle, from which it may be applied to the tooth by means of a straight glass tube some inches in length, one end of which is inserted in the cork of the bottle and the other is drawn to a fine point. Upon inverting the receiver the chlorine will pass downward into the tooth, which must be in a moist condition, as the gas will not bleach otherwise. It should be followed by the immediate use of an alkali, to neutralize any acid, and the mouth and nostrils should be well protected by the dam, to prevent the irritating effects of the gas when inhaled.

The subject being open for discussion—

Dr. Palmer, of Syracuse, whose investigations had been referred to in the report, made some remarks with a view of further explaining his theory in regard to dental caries. There are, he said, two distinct divisions of teeth calling for our operations; and they call, in his opinion, for different methods of treatment. First, those which, though decayed, may be considered as in a normal condition as regards their structure. For such teeth the operation of filling is purely mechanical; we plug the cavity and exclude the moisture. The dentine is in a normal condition, and the gold, though of opposite electrical condition, does no harm in contact with the bone. But there is another class of teeth which demands antiseptic treatment. For instance, the sixth-year molars, when soft and chalky; in these teeth gold is not only not the best, but it is positively injurious.

The speaker then went into a minute exposition of the principles of galvanism, as applied to the case in point. In the galvanic cell there are two elements, the higher and the lower. When gold and tooth-bone are brought in contact these elements are present, and the relations of the battery are sustained. The idea had been entertained that only metals would form such relations, or, in other words, act as conductors; but experiments had proved that tooth-bone was such a conductor. In firm teeth it is a non-conductor, but in soft, porous teeth it becomes a conductor, and the fillings become loosened. We can measure this action with the galvanometer. Tin possesses antiseptic properties which gold does not possess. Fletcher says it is the plasticity of the tin, but it is more than that. The tin stands in almost the same electrical relation as dentine, and, when submitted to the galvanic action spoken of, it is consumed and not the dentine.

The two substances, tin and dentine, however, being so nearly of the same condition, there is very little galvanic action. Amalgam, to his surprise he had found to stand nearer to gold than tin in this respect, when he supposed it would fall below. Any attempt to make it finer was a step in the wrong direction. He did not recommend amalgam; the cases are few in which it should be used, but when used it should be in accordance with chemical laws. If tin would stand abrasion it would be better in every case. When amalgam is used there cannot be a perfect union of the metals till after crystallization, and the mercury will remain around the edges, and will be dissolved out, and the edges will be ragged and the mass porous. The mass should correspond in electrical condition with the dentine. In some amalgams this seems to be almost attained.

He had had a case in which a partial gold plate had salvated a patient on account of the different electrical condition of the patient's mouth. He had boiled the plate in strong soda, to produce a different surface, and in a little time the system adjusted itself. This case was one of a thousand, as gold hardly ever affected a patient in that manner. It should be understood that the galvanic current does not destroy, but is only the evidence that chemical action is going on, the result of which must be destruction.

Dr. Taft inquired why it was that when a gold and amalgam filling are in close contact the dentine is apt to be destroyed around the gold.

Dr. Palmer said that it was because there was an alkaline current about the amalgam, but around the gold there was acidity. He could not say whether the chemical action produced the current or the current the chemical action. It did not matter, however, which preceded, for one follows the other on the wings of lightning.

Dr. Taft spoke of cases in which there was persistent pain when amalgam fillings were inserted, which continued till their removal, and asked why it was.

Dr. Palmer said that it was in consequence of a difference in electrical condition; amalgam was not proper in those cases, but gold was.

Dr. Chandler asked Dr. Palmer's opinion as to the plan recommended by Mr. Fletcher to overcome chemical action, viz: to varnish the interior of the cavity with copal, to act as a non-conductor.

Dr. Palmer said that any varnish that would act as a non-conductor would answer the purpose; it fills the pores of undeveloped dentine.

Dr. Osmond. Decomposition around fillings occurs in an acid condition of the buccal fluids. The acids have an affinity for the phosphates of lime. The silver of the old-fashioned amalgams oxideied and combined with the tooth as does nitrate of silver. Amalgams containing a large proportion of tin do not discolor, and the shrinkage is less. He rarely uses amalgam, and is not defending it. He has seen many a good gold filling rendered useless by the proximity of amalgam. As Dr. Watt once said, " A thunder-mill has been erected in the patient's mouth!" Where mouths are very acid there is the most evil. In such cases he varnished the cavity with silicate of soda and touched it with sulphuric acid and water, washing out afterwards, which left a film of silicate, upon which he inserted the filling, and did so without pain. The cavity was protected, and there was no sensitiveness. He had found gratifying results from such treatment.

Dr. Taft said that he had been gratified at the remarks of Dr. Palmer; he does not go so far as he would like, nor so far as he will if he keeps on in the present course. We ought not to be satisfied with the investigations of Dr. Palmer and one or two others, but each ought to investigate for himself. Amalgam has not answered, and it is doubtful whether it will ever be so known as to be used with reasonable expectation of saving teeth. But if it or other materials are to be used, they should be as thoroughly understood as possible. It has been used in the dark by the great mass. The dental depot men had told him that since the papers of Drs. Hitchcock and Bogue on this subject they are selling largely-increased quantities of amalgam. Now, if these papers prove anything, it is that amalgam is unfit to fill teeth with. The directions in which Dr. Palmer had been investigating had not been touched upon at all in these experiments. These are the great questions in regard to it,-- not whether it will contract or discolor, but its effect on the system, and the points which Dr. Palmer has been making.

There is here a large and profitable field for investigation. Bleaching teeth is an important subject, and but little understood. We leave out of view the agent producing the discoloration; it is produced by various things. There is some change of color inevitable when the pulp is devitalized especially in young teeth; there is a change in the soft solid substances of the tooth. The larger amount of this material the more difficult will it be to restore the color. In some cases excavation will be sufficient. What should be used will depend on what the coloring material is. Almost any agent thus far used will both fail and succeed. Chlorine is the great bleacher, and it will accomplish it so far as it can reach, but no farther. If the tooth is blackened through its substance, nothing will ever remove it. Mistakes are sometimes made in endeavoring to do this. In one case within the speaker's knowledge, after a long treatment with chloride of lime, the entire crown of the tooth came off.

Dr. Rehwinkel said that he was gratified at the remarks of Dr. Palmer, and thanked him for his experiments. This theory explained a great many things for which he had been able to find no satisfactory solution. Looking over his work, and knowing that he never filled without the greatest pains, he finds wear and tear; the filling is faultless, but the tooth has left the filling; the closest joint had been undermined. Fillings sometimes remained good for some years, and then there seemed to be set up a morbid chemical action which caused destruction. He believes the oxide of tin possesses a peculiar medicinal action upon tooth-bone, which enables it to resist decay. In children's teeth it is better than gold. His suspicions that the destruction he had observed depended upon causes over which we have no control had been confirmed by Dr. Palmer's remarks. The amalgam question should be handled carefully and with kid gloves. Dr. Bogue and others had shown us that amalgam must stand upon its own merits and not upon the maker's name. He hoped amalgam would never be raised to the dignity of discussion. To some it might be furnished free of charge in unlimited quantities, while it would not be safe to recommend it to others. If we ever undertake to discuss amalgam it will be a curse to the operative department, as rubber has been to the artificial. Still, he would sever his connection with a body which would forbid his using it; when he does so he wants to know why he does it. He looks with dread at the tendency which the question has taken, and sees a cloud rising in the horizon.

Dr. Hunter (Michigan) said that he is practicing in a small town of fifteen hundred inhabitants, where the people had been taught by traveling dentists that amalgam was as good as gold. They would work for half price, and tell people that it was only for looks that gold was used in front teeth. He had himself become disgusted with amalgam, and had put in but one filling of it since 1874; but some of his patients had left his office never to return because he would not use it. They could do work so much quicker too than he could, even with all the facilities for working rapidly, and they could do it without pain. He thought these difficulties which he encountered in a small place were well worthy the attention of the association.

Dr. Daboll spoke of a patient whom he had seen who had teeth filled in Berlin. The appearance of the fillings attracted his attention, and on inquiry and investigation he had discovered that they were a combination of gold and tin. Since that time he had himself used this combination and the result, as observed after two years, has been highly favorable.

The subject was then passed.

There being no report on the subject of "Dental Therapeutics," that of "Operative Dentistry" was taken up and

Dr. Stockton read the report of the committee, written by Dr. McCall and himself.

The following is the substance of the report:

Dr. McCall's report was confined entirely to the department appliances. The burring-engine was spoken of somewhat at length, as standing at the head of the list. The Elliot suspension and S. S. White engines were considered as the leading styles, and the merits of each were spoken of. Ths attachments for injecting air and water were especially mentioned, together with the equipment of burs, disks, polishers, burnishers, etc., and the fear was expressed that many purchasers of engines did not avail themselves of these advantages, but were trying to get along with a scanty outfit.

Motive-powers were then considered; electricity, steam, springs, and water-power being named; the last being considered as having advantages over all the others for those having water in their offices

The various mallets were then spoken of. The electric has its warm friends and staunch opposers. The S. S. White plugger for the engine was named as undoubtedly the best in its line, and driven by the Backus motor, had been used by the writer for a year, and had proved a perfect success. The work has been easier for both operator and patients, and the latter express a decided preference for its use.

Minor appliances, such as Bancroft's and Hickman's rubber dam clamps, Jarvis's separators, Bogue's tape-forceps, and Magill's buckle, were briefly mentioned, and the report concluded with the caution that a few well-seclected instruments would do better service than a multiplicity, which would load down the operating-stand and confuse the operator.

Dr. Stockton's report was upon the same branch of the subject, and was mainly devoted to the electro-magnetic mallet and the Backus water motor, both of which were spoken of in the highest terms. In regard to the former, it was stated that it had received the indorsement of Professors Truman, McQuillen, and Arthur, and Drs. Jack, Webb, and others, as second to no appliance save the rubber dam. One-half to two-thirds the time is saved by it; the most delicate walls are preserved, and every pulsation is under the will of the operator, who is greatly relieved from nervous and muscular exertion.

Three different forms of automatic pluggers—the Buckingham, Gaylor's pneumatic, and Swartley's—were very briefly noticed, and the report concluded with a somewhat enthusiastic mention of the Backus motor, as with its various uses best calculated of all the numerous appliances to preserve the health and prolong the life of the operator; in fact, with that and the rubber dam, and electric mallet, dentistry is made easy, and we would grow young again in its practice, and "return from our vacations with overflowing delights to its welcome embrace."

The subject being open for discussion,—

Dr. Taft said that the report was a good one, but come caution must be exercised lest these new things run away with us. It seems as if all there was in operative dentistry in these days was to have something to bore with. This ought not to be. We should not attempt to do everything with the dental engine. Some do, and bore and grind more than they ought, and with far less precision than could be done by hand. This is more especially so with young men; they fail in delicacy and precision, and work as though the teeth were devoid of vitality. They need a caution, and a special caution. He would not have it understood that he does not like these appliances. While we improve the machines we should also improve our knowledge of the things on which efficient operations on teeth are based. We must know how to do the work, and the condition of the paris, and to control and manage that conditon. We must not run wild on instruments and appliances, but value all things as they deserve.

Dr. Atkinson. Almost all teeth requiring filling have currents of circulation, which must be taken into account;

and because they have not been, the pulps have died and the teeth must be bleached. Some poor conductor ought to be substituted for the lost dentine so far as possible. If we could use simply a stratum of gold plate at the periphery of the cavity, which would exclude all the air, it would be a perfect filling. Hill's stopping or oxychloride should be used: but if the latter, it should not be brought into contact with the pulps at all. He mixes the oxide of zinc with salicylic acid, and fills over it with the oxychloride.

Dr. Abbott. Young men should not use the engine at all till they have learned to do the work well without it. They should study the anatomy of the teeth and the distance they can cut. Thousands of teeth have been filled upon a live pulp, and it has died and must be bleached. He does not believe that amalgam enters into the substance of the tooth at all; it is the semi-fluid substances in the tooth which discolor. He had never seen the water motor; the only thing seems to him to be the electric machine sold by S. S. White for running the engine. Had never used a solution of salicylic acid for capping pulps. Pulps may be preserved when oxychloride is in contact with them. Thermal changes are likely to cause the death of the pulp, to prevent which Hill's stopping is most successfully used; never fills without it if there is room to insert it. In root-canals takes a solution of gutta-percha in chloroform and carries it into the canals with a highly-polished instrument, places a piece of Hill's stopping over it, and forces it into the canals. Many canals it is not safe to enlarge; objects to the attempt to enlarge canals in general. Many teeth are ruined by drilling through.

Dr. McKellops said that it was not necessary to enlarge the canals; they could be filled with a solution of gutta-percha without it. He exhibited specimens showing how perfectly the solution would enter the canals. This was said to have been done twenty years ago, but he had never heard or read of it till it was brought forward by Dr. Bowman, of St. Louis. By wrapping a few fibers of cotton on a broach a solution could be carried into the canals, and by placing a piece of softened gutta-percha over it and applying pressure with a larger-pointed instrument the soft material would be forced very perfectly into the canals.

Dr. Rehwinkel. Is it possible that a tissue so delicate as a pulp will tolerate an agent so strong as chloride of zinc, an agent which is used to destroy tissue? How is this to be reconciled? How is it possible that it preserves here while it destroys elsewhere? Dr. Atkinson is more responsible than any other living man for any mischief that has as yet arisen from this treatment, and more harm has been done with it than with any other remedy that we have. Chloride of zinc is a sneaking assassin; it is not entitled to the respect due to the bold attack. If it does not kill, it is because the constitution is so strong as to successfully resist it. It mummifies and keeps things quiet, and appears to be a brilliant success, but the pulp is most likely dead. The reports we hear are of only a few weeks' standing. We do not open and examine, and run the risk of injury. If it does not give trouble, we are justified in thinking it is alive. The condition of the pulp in exposure ought to govern us. We should not always douce with carbolic acid, not at all when freshly exposed. What is the use in cauterizing a wound which we wish to heal by first intention? There is no better substance for capping than gutta-percha in chloroform; if oxychloride is used, would cover the pulp with paper, cork, or something of the kind, and then would risk it. If the pulp is suppurating there is difficulty. These specimens of Dr. McKellops are the best thing he has seen. It has become necessary to defend the use of anything but gold in roots, but gold is not under all circumstances the best either for roots or teeth. When we cannot get out all the pulp, oxychloride may be used to mummify the rest.

Dr. Atkinson said he had been held responsible for the use of oxychloride of zinc, but he wished to announce that he is not responsible for men understanding through their elbows. It is a misunderstanding of plainly-stated truths.

In the Dental Cosmos for March, 1868, *Atkinson's* method would be found. It is the same now, except that he uses salicylic acid, the active principle of creasote. He makes a pool of it over the exposure, makes a cream of oxychloride and drops it over it; this drives off the creasote, which is then absorbed, and a filling of stiffer oxychloride is put over it; cover either with gold or apellicle of collodion. He is no assassin, except to error.

Dr. Rehwinkel said he had simply stated a fact; we know that Dr. Atkinson indorses this substance in immediate contact with the pulp.

Dr. Atkinson. I don't; what is immediate contact?

Dr. Rehwinkel (putting his arm around Dr. Atkinson's neck.) Is not that immediate contact? (Laughter.)

Dr. Atkinson. That is the contact of your coat-sleeve.

Dr. Rehwinkel. Then the creasote represents the coat-sleeve, but the coat-sleeve is no fitter for contact than the other.

On motion, Dr. Morrison was invited to read a volunteer on "Operative Dentistry." The paper was devoted to the operation of replantation of teeth. The substance of it is as follows:

The writer stated that he had resorted to the operation several times, and proceeded to give a detailed history of several cases. The first was in the mouth of a delicate lady of forty; the teeth were badly decayed posteriorly, involving the pulp, and the roots covered with a brown, thin scale of tartar. The patient not being able to undergo the operation in the mouth, the tooth was extracted and filled, the tartar removed, and the tooth replaced. For three or four days some pain was suffered, but now, after five months, the tooth is the firmest in the arch, and the gum has a more perfect union than it had for years. Other cases were then detailed, in which the same general plan was pursued, the roots being filled with pure gold wire and the crowns with oxychloride and gold. Some of the cases were mentioned as questionable, or partial failures. One was in the mouth of Dr. Ingersoll, of Keokuk, Iowa,—a right lower first molar, which having an enlarged root, broke in extraction, the posterior root separating, and one-eighth of an inch breaking off from the other root. The molar, or what remained of it, was converted into a bicuspid, filled and replaced, and is doing good service, except on the hardest kind of food.

The writer stated that he had replanted nineteen different teeth, of all classes, all pronounced worthless if treated in the mouth, and of that number only four had been extracted the second time. He took the ground that in all cases where the pulp is dead or beyond restoration to vitality, and in cases with incurable fistulas, the tooth can be more successfully treated and more of the organ saved, taking all risk of breaking into account, in this manner than in any other; and that though it might be carried to an extreme, yet a large number of teeth removed by accident or otherwise might be restored to usefulness by this method.

Dr. Morgan said that gentlemen seem to insist that death is the result of using oxychloride; he knows that this is not so. He is careful not to re-expose the pulp, but when he has done so he has found it living twelve months afterwards. Those specimens are pretty, but he fears that they are not practicable. Is not satisfied to fill roots with a plastic material; does not know what he is doing; you may pump a portion of the debris backward and you will drive the material out into the soft parts. In the use of oxychloride, there has been more than one case where it has been driven through and necessitated extraction. Any plastic material is liable to this.

Dr. Abbott. Pulps *are* saved with oxychloride in contact with the pulp,—that is, in contact with it except so far as the albumen may seperate them. He had watched and recorded results, and out of seventeen had saved sixteen every time. In one case he had capped three teeth in this way, and filled with amalgam and afterwards with gold, and in doing so the cap flew off, and the pulp was alive and in perfect condition. It makes a great deal of difference how the pulps are handled. They must not be in an irritable condition; and if they are, they must be treated till they can be handled as well as any other wound. Gutta-percha and chloroform will not preserve teeth with him, nor will cork or paper; none of these are half as good as oxychloride.

Dr.——. The coating of albumen is a capping of itself; it prevents the infiltration of fluids; it is just the thing.

Dr. Rawls, of Lexington, spoke of the use of lead wire for filling roots; formed as nearly to the shape as possible by first getting the size of the canal with a piece of cotton wrapped around a broach. It exerts a therapeutic influence in chronic inflammation. Oxychloride in contact with the pulp is not the thing in all cases. The action of the escharotic is to contract the pulp and push itself through. Is the carbolate of albumen soluble or not? If it is, it is either taken up or left *insitu;* and if the former, there must be a space left, which will result in strangulation against the ragged edges of the cavity. We need something that is not an escharotic, that is a good non-conductor, and that will resist the introduction of the permanent filling. This we have not got. Plaster of Paris would be good if it was durable enough. We must protect the pulp from the action of chloride of zinc. Sometimes there is a superabundance of life in the patient that can stand anything; but we do not often have such patients.

The hour fixed for the election of officers having arrived, the association proceeded to the election, with the following result:

President.—A. L. Northrop, New York.

First Vice-President.—H. J. McKellops, St. Louis.

Second Vice-President,—H. A. Smith, Cincinnati.

Corresponding Secretary.—J. H. McQuillen, Philadelphia.

Recording Secretary,—C. Stoddard Smith, Springfield, Ill.

Treasurer.—W. H. Goddard, Louisville.

Executive Committee.—New members: L. D. Shepard, Boston; T. L. Buckinham, Philadelphia; and M. H. Webb, Lancaster, Pa.

The action taken at the meeting held in 1872, at which it was voted to hold the meeting of the association in 1876 in Philapelphia, was taken up and ratified.

The meeting then adjourned.

Evening Session.

The meeting was called to order at the usual time. The President, Dr. Dean, having left for Europe, the chair was occupied by the vice-president, Dr. Keely.

The Subject of "Operative Dentistry" was still under discussion, and Dr. Rawls continued his remarks. He said that he considered Dr. Atkinson's method of applying oxychloride nearly correct, as he understood it. Dr. Rehwinkel's remarks were also in place as regards soft teeth. Few teeth will bear oxychloride in contact with the pulp even though carbolic acid is used first. If amalgam is applied over the capping it will almost certainly cause the death of the pulp. Bichloride of mercury is formed under the cap, unless the oxychloride is well dried out. Oxychloride is valuable for roots; Introduces it with a few fibers of cotton, and it goes as near to the apex as any other material. Success in capping depends upon the diagnosis. When the pulp is exposed it is in one of three conditions,—either congested, in dead. We must be able to see exactly the condition it is in. It inflamed, or is our duty to save a portion of the pulp alive if possible; it is often wholly destroyed when it should not be. Would cut down to healthy tissue and leave it, and there is thus better chance for success.

Dr. C. R. Butler said that if we must practice by machinery, we might as well be machinists and have done with it. Patients don't like to have their mouths madea machine-shop of. The idea that there must be a machine for everything is unscientific. The ability to cut induces us to cut to too great an extent; this is the case especially with young operators,—they are in great danger of doing damage with the engine. The packing, too, must now be done with machinery. There have been more poor fillings put in during the last ten years by over-packing than by under-packing. Fillings are packed to death. (Applause.) The walls are powdered. They go away from the fillings, and they ought to, for there is no wall there. There is no chemistry about it,—it is miserable mechanics. Hard gold requires great force, and there is no tooth that will stand the continued concussion without becoming powdered. Machinery is doing damage even in the hands of the best men. They don't appreciate the amount of force they are applying. He does not argue in favor of any kind of operating, but we may be overdoing the matter, and are more likely to be with machinery. There is no advantage in mixing gold and tin; use either one or the other. The two metals will be likely to give rise to galvanic action. They say that in soft teeth it is more congenial but if cavities are cut out well and well filled, no chemistry will hurt them. Many operators exhaust themselves by having so many appliances and making so many extra movements before they are ready to begin. He then spoke of the use of screws in cuspid teeth, illustrating his remarks by the aid of the black board.

Dr. Abbott. Amalgam fillings sometimes do good service, and many men would save some teeth better with that than with gold. Thousands had better use amalgam, or rather, gutta-percha. But he does not advocate the use of amalgam, and rarely uses it. But sometimes teeth can be saved better with it. Hammering gold against the walls is what produces these chemical changes; the walls are broken, perhaps imperceptible, but the check grows larger. Is not a believer in screws; there is not a case in a thousand where a better filling cannot be made without them. The gold is apt to be loosely packed around them, and is liable if packed hard, to knock the screws loose. Had never had any satisfactory results from their use, and had abandoned them long ago.

Dr. Flagg. It seemed as if, judging from the remarks he had listened to, he was back where he was twenty years ago. If this profession has not changed in that time, it shows that it rests upon a *firm basis*! It requires special skill to work oxychloride of zinc successfully; Dr. Rehwinkel can't work it because he has not the skill to do it, but he has skill to work gutta-percha, and that takes skill. It seemed that the day of "iodine and creasote," of thymol, and those ancient things had passed away. Now the only thing was salicylic acid. That is omega number three: and who could have an omega number three but Dr. Atkinson? He (the speaker) had tried to save more teeth, he supposed, than any other man; he had tried everything, and had saved an everlasting lot of them, and an everlasting lot of them died. He knew they were dead because he *smelt 'em.* If he thinks that a tooth should be filled with amalgam, he says so. Some plugs *will* fail, though put in as an Abbott or a Butler can put them in; that is, those upon approximal faces. Saving pulps depends upon the patient and upon the operator and largely upon the climatic location. He cannot say with Dr. Abbott that in his region, the miasmatic land between the rivers, he can save sixteen out of seventeen. He is afraid that he loses sixteen out of seventeen. He had formerly used equal parts of creasote and oil of cloves, but now bathes the bottom of the cavity with oil of cloves; it is not escharotic, and it has a sort of satisfying odor, and, by the way, it is very good for wasp-stings. Creasote almost always causes trouble in an irritable tooth; but there is no agent so soothing as oil of cloves. There is nothing better for the aching that sometimes occurs under the application of the dam. This was *his* omega number three.

The speaker made some protracted remarks on the subject of amalgams, though he did not know why they wanted to know about it if none of them used any of it. He is not one of the men that advocate doing good work without regard to price, and then charge seventy-five or one hundred dollars for a filling. A dental depot man had told him that he had sold one thousand ounces of amalgam to one man at one time, and it was not all used by the *poor* dentists either,—those who are not here. Amalgam is the best plastic filling known. The papers read at New York, about which so much had been said, were all bosh, bosh, though we were led to believe that the meeting was the culmination of all dental science. If he had not had special facilities for investigating this subject he would have taken them all for corn. The analyses were far from correct. When men say that fillings won't leak they say what they don't know. He has packed one thousand tubes, and in one tube the filling will leak and in another it will not. The packing is an important matter; if the tube is filled dry there will be no serious leakage, but they all leak some. But amalgam ought not to be washed; if it was the tubes would leak in less than two minutes. He had tried washing in alcohol and also in water, and the difference was just nothing at all, though he had dried his hands and the mass with warm napkins. He would earnestly advise not to wash amalgam ; it must be worked dry. If everything else is equal, the cavity that is most dry will succeed best. The alloys in market are all much alike, and it is not strange that men should be pleased with each. Pressure will not suffice to make a solid filling ; it should be tapped lightly with burnishers. Don't lay it down on the table, but keep the button in your hand to keep it warm ; don't squeeze the last piece hard, but wait till it solidifies, and wipe off the surplus mercury, if any. As to the matter of the drilling machines. he thought the young men could take care of themselves. It was strange how much solicitude was manifested in regard to the young men. He would say let them go on boring, *boring,* BORING ! (Applause.)

The meeting then adjourned. —*Dental Cosmos.*

(TO BE CONTINUED.)

EDITORIAL. ETC.

A Reply.—In the September number of this JOURNAL we published an article from the *New York Express,* concerning the late meeting of the American Dental Convention, at Long Branch, without knowing to whom this article referred, and with no intention whatever of injuring the aggrieved party or the Society of which he is an officer.

The only reason we had for noticing the article in question, was to give an opportunity for a reply, two of which we now publish. What was said by us concerning the American Dental Convention, apart from the article which appeared in the New York paper, was nothing more than a statement concerning its present condition, which we believed to be a true one, and we are pleased to learn that in some matters the opinion we had formed and the knowledge gained from others, [never having attended a meeting since the formation of the American Dental Association,] was incorrect, and that it is in a more prosperous condition than we supposed was the case. Personally we have the same good feeling for this Society, as for any other striving to advance the status of our profession. The following replies are from gentlemen well versed in all that relates to the working of the American Dental Convention :

"In the September number of the AMERICAN JOURNAL OF DENTAL SCIENCE, under the head of Editorial, you have transcribed from the *New York Express* an anonymous communication, to which the officers of the Convention did not deem proper to reply. And in which the writer, after he '*eulogises* himself and others in a *self-praising* manner,' hints that if they had been the leaders, Capt. Leland, of the Ocean Hotel, would have been honored by over five hundred members of the dental profession. Now it is well known that the American Dentla Association, backed by the dental societies throughout the United States, together with the dental colleges, finds it difficult to muster even one hundred dentists.

The gentleman referred to as a defunct dentist, for years has had and still has a lucrative practice in New York city, and numbers among his patients eminent members of the Bar, the Clergy and Medical profession ; and it is not to be wondered at that he is an object of envy to such fellows as 'Wandering Willie." He was Chairman of the executive committee, and one of his duties was to arrange the business for the Convention, which he did to the satisfaction of nearly every member.

A few dentists who attended the Convention for the first time, attempted to introduce the matter referred to at an improper time, and not succeeding, they took offense.

The attendance was as large as usual, and very harmonious, and the proceedings are being published in the *Dental Cosmos.*

The Chairman in his report, stated that it had been customary to make an appropriation of ten dollars to the *Local Press*, as a slight compensation for reporting the proceedings ; with which large sum the *Local Press*, of Long Branch, was 'bought up.'"

The second reply is as follows, and refers to our statement concerning the present status of the Convention :

"You say the Convention has enemies in its midst; its struggles for existence have been long and severe ; it has been patronized by a few New York dentists ; the association absorbed all its leading members," &c.

Allow me to say in all of these, you are very much mistaken; the Convention has no enimies in its midst ; a few evil spirits came among us and tried to sow discord, but the seed took no root. The Convention has had no struggles for existence, but has gone on in the even tenor of its way; it is true that some years since, an effort was made to kill it, but the effort failed, and the Convention still lives. Members from the Convention from all parts of the Union, and across the water, have attended our meetings the last three years. Permit me to name a few who have been with us, in order to offset the statement "All the leading members, etc.

(A large number of names are here appended from the East, North, South and West, which the want of space compels us to omit.)

We regret that the matter became so personal, and that, without any knowledge of the writer, or the person referred to in the article in the *New York Express,* we were induced to publish the same, believing that by so doing, we should enable both sides to be heard without injustice to anyone.

Death while Unconscious from Ether.—In New York, on Saturday, an inquest was held on the body of James H. Hallock, who died from the effects of ether administered to him while undergoing an operation on his jaw. Dr. W. T. Helmuth testified that he performed the operation on Mr. Hallock, and that the ether was given to him, an assistant physician constantly feeling the patient's pulse. The Doctor had extracted four teeth, when he noticed that the face of the patient had become blue. Artificial respiration and the galvanic battery were instantly resorted to, but without avail. Witness had often given six or eight times the quantity of ether during an operation without injurious effects. It was also testified that Hallock had been in good general health, but for several weeks had been suffering from an ulcerated jaw.

Correction.—In the article published in October number of JOURNAL, entitled, "A few Facts from Salter," by Dr. J. Edward Line, on page 271 first full paragraph, fifth line, read: *The cases show, etc.*, for these causes show, etc,

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The Sixth Annual Session of the Virginia State Dental Association will be held in the city of Richmond, commencing Tuesday morning, December 14th, at 10 o'clock.

All members of the profession throughout the states, are cordially invited to attend.

GEO. F. KEESEE, D. D. S., *Secretary,*

MONTHLY SUMMARY.

On the Diseases Ascribed to Dentition, and their Pathological Admissibility.—Dr. L. M. Pollitzer is inclined to differ very decidedly from the views held by A. Vogel regarding dentition and the diseases connected with it. He maintains that in the great majority of cases there is no such thing as catarrhal stomatitis accompanying the eruption of each tooth, the process going on so gradually and easily as not to be a source of inflammatory irritation, while the ulcers on the tongue, constituting stomatiti sulcerosa are due to friction on the tooth, which has penetrated the gum. Nor does he think worthy of greater consideration the idea that the increase of the fluids of the mouth during dentition averts the danger of brain symptoms. He is much more inclined to attribute diarrhœa at this period to the ingestion of unsuitable food than to the irritation of dentition. He cannot recognize the periodicity and association with the eruption of the teeth, which Vogel maintains regarding various skin diseases. The various diseases occurring during dentition may all be observed at other times, and we should not attribute them to this cause unless all other known causes are absent. As to the great reflex irritability said to exist in childhood, and to be increased during dentition, he argues that it is astonishing to observe how well a young child will bear severe operations, very painful pathological conditions, and other powerful influences, without the development of reflex irritability; and why should we attribute to the comparatively easy and unimportant process of dentition an increased irritability which is not claimed for important physical, histological, and chemical changes going on in various important organs?—*Med. Record.*

Third Dentition.—In the Hospital for Incurables, Paris, an instance of third dentition took place in a nun aged ninety years. She had, on previous occasions, once when forty-seven and again when sixty-three years old, cut one new tooth.—*Med. and Surg. Journal.*

Syphilis of Parents as Affecting the Offspring.—Dr. Drysdale, in notes to *The Medical Press and Circular*, ranks himself on the side of those who hold that syphilitic children can only be born when the mother is syphilitic. This view, opposed by the authority of Trousseau, Diday, Benton, Depaul, Lee, Acton, and other writers of great note, is sustained by Notta, Berkeley, Gascoyen, Cullerier, and Owse, of Christiania, and others Drysdale cites the following instances in support of the latter opinion: A gentleman contracted syphilis in 1850. He Married some years afterwards, and now has three blooming children. Another gentleman had syphilis in 1851, and his wife contracted syphilis from him directly. She had no children. Four years later the gentleman married again, and now has a fine family of sons and daughters. Two gentlemen of his acquaintance contracted syphilis to his knowledge, and have had large families of healthy children The case is not so where the woman has contracted syphilis. A lady contracted syphilis from her future husband, who bit her lip. He was suffering from a secondary affection of the mouth. She married, but had no children by this husband, who died in three years. A few years later the lady again married, and gave birth to a dead child. In view of such facts as he has collected, he feels warranted in assuring his male patients that if they have been free from syphilis *some two years* they will not have syphilitic children should they become fathers.—*Medical Record.*

Curious Brain Lesions.—The St. Louis *Clinical Record* contains a remarkable case of brain lesion. A man named Waters, living near Leavenworth, Kansas, died from morphia a short time ago, and as it was known that he had had a habit of running wires, and even nails through his own skull during his former residence in the penitentiary, a careful autopsy was performed. Two openings were found in the skull, one, which the prisoner was known to have made with a brad-awl, near the inferior posterior angle of the right parietal, and another near the superior posterior angle of the same bone. A wire was found in the brain. It had been introduced through the upper opening, and just missing the superior longitudinal sinus, had pierced to the base of the brain, a little in front of the fissure of Sylvius. It is stated that the corpus striatum was not wounded. A nail, one and three-fourth inches in length, was found lying beside the wire. Although wires had been removed during life from the lower aperture, no trace of their course was discovered. Though the patient had shown a suicidal tendency he did not appear insane, except for this habit, and could do his work with correctness and understanding.

Neuralgia Treated by Nerve-stretching.—Mr. Callender, of London, reports the case of a man who had undergone amputation of the forearm twice—the second time owing to imperfect healing and a painful condition of the stump. The second wound healed, but he was liable to attacks of pain in the stump. About seven weeks before his presenting himself to Mr. C., he struck the end of the stump, and since then the pain had greatly increased. The limb was cold, the skin glazed and of a dusky color, the surface tissue was inelastic, and the skin was moved with stiffness over the subjacent fascia. He complained of twitchings in the forearm as well as in the arm, though in the latter to a less degree; but his chief distress arose from the constant pain, sometimes burning or shooting, but liable to become suddenly much more severe, and at times to be almost unbearable. Various measures for his relief were resorted to, but without success, and an operation was decided upon. The median nerve was cut down upon, and found to be thickened in itself and in its surroundings. After dissecting it away from the tissues about it for the distance of about an inch, it was forcibly stretched by pulling it downwards for about three-quarters of an inch. The wound was then closed. Some pain occurred on the following day, but none afterwards. One month after the operation the wound had healed, the arm was warm and had regained its natural appearance, and the patient was in all respects well.—*The London Lancet.*

On the Relief of Toothache by Bicarbonate of Soda.—Dr. Dyce Duckworth records in *The Practitioner* a case of severe toothache in a boy, which he attempted to relieve by rubbing the cheek with chloroform: by putting some on cotton wool inside the auditory meatus, by plugging the tooth with cotton wool saturated with chloroform, also with carbolic acid, but to no purpose. He next tried a solution of bicarbonate of soda, which was quickly followed by complete relief.

The Pathology of saliva is as yet, so far as I know, observes Dr. Duckworth, an uncultivated field, but I believe, if it be looked for, that this secretion will be more often found to possess an acid reaction, than is generally believed or thought, and I also think that useful therapeutical hints may be gathered by the employment, at various intervals, of litmus paper in the mouth, in many cases of dyspepsia and chronic disease.—*Monthly Review of Dental Surgery.*

Dental Neuralgia.—Dr. J. Sawyer says, in the *Practitioner*, "I have rarely found gelseminum fail to give decided and lasting relief in cases of neuralgic pains in the face and jaws, associated with carious teeth. I have usually given fifteen mimims of the tincture every six hours."

THE AMERICAN JOURNAL OF DENTAL SCIENCE.

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ARTICLE I.

The American Academy of Dental Surgery.

Special meetings of October 19th and 20th, 1875.

Reported for the American Journal of Dental Science.

Evening Session.—Continued.

On the evening of the 19th, the Academy assembled at the house of the President, No. 50 West 35th Street. The meeting was called to order at about 7-30 P. M., and the regular business proceeded with. A number of dentists were elected either active or corresponding members. Presentations were made to the library, by Dr. Samuel Welchens, Lancaster, Pa ; Dr. N. M. Beckwith, New York ; Dr. Geo. H. Perine; and to the Museum by Dr. C. H. Eccleston, Oxford, New York ; Dr. F. S. Howard, New York : Dr. John S. Smith, Columbia, Pa. Additional letters of a complimentary character were received from a large number of prominent dentists. Papers were received from the following gentlemen, but the programme being full, they were reserved for a reading before a future meeting of the Academy: Dr. E. L. Hunter, Enfield, N. J., paper upon "Mechanical Abrasion of the Anterior Teeth," Dr. Geo. A. Mills, Hartford, Ct., paper upon "Association."

The essay of the evening was then read by the author, D. D. Miles, M. D., Phila. Pa.; it was entitled, "Preservation of the Teeth as a Specialist."

Dr. Miles said that all the attention heretofore given to this subject had been an incidental feature of dentistry; but if it was a field large enough and sufficiently important to occupy the whole attention of any one practitioner, under the *ægis* of due qualifications, why should it not be occupied as such? Division of labor had been elsewhere found favorable to high special attainments; experts were found devoting their whole time and attention to their particular specialties; and even the barber had employees who were considered adepts in some particular feature of the business. A very fine plugger or operator ought never to touch a plate, as it would spoil his hands for that acute sense of touch which was needed in the delicate manipulations necessary in operating upon sensitive cavities. A lobby in any one avocation is the most constant incentive to improvement, and a desire to excel in any particular direction, results in profitable improvement.

The protection and preservation of good teeth, together with the restoration of imperfect teeth, should be the legitimate field of the specialist; and his attention and supervision should be always in demand. The fact is, that the most apparent efforts for the preservation of the teeth have been monopolized by enterprising venders of empirical compounds.

Absolute purity should be the basis upon which treatment must be founded. To establish this necessary foundation, the cleansing process should be effected by means differing as much as the different phases of discoloration—accumulation of tartar—different conditions of the gums—from simple irritation and softening to phogedemic ulcers. These require various topical treatment; some require powerful action, as the dilute re-agents, escharotic stiptics —down to antiseptic astringents, all acting as tonics and alteratives,—down to the most gentle anodynes, and fragrant stimulants. In the subsequent treatment, and for the use of the patient, different materials of erasive and determinative qualities should be discriminatingly used, down to an inpalpable polish and neutralizer, to answer the different conditions and constitutional habits, whether of an acid or alkaline re-action,—all cleansing, polishing, hardening and strengthening the parts, the bony as well as the soft tissues. Treated so, and in time, the teeth would be pure, hard and beautiful, the gums dense and strong. No more impurity, no more bad teeth.

No preparation could be *sold over a counter* which would accomplish this. The general dentist could not, as a rule, spend the time necessary to do it. The field should be occupied by the specialist, as only through him could the best results be attained.

The discussion of this paper was postponed until later in the evening, in order to witness an exhibition of cauterization by the galvanic battery. The use of the battery as a cautery was shown by applying the platinum wire to the leg of a rabbit, (whose spinal cord was first punctured,) when the wire passed through flesh and bone, and made a complete amputation without hæmorrhage.

Dr. Geo. H. Perine, in referring to the battery, said that the dentists had endeavored to steal the thunder of the doctors in certain operations, and especially in operations upon the oral cavity, had they met with success. He had made several very satisfactory operations. They might perform the operations free from shock, safe from hæmorrhage. They might employ the cautery for many purposes —for the destruction of nerves,—for the taking away of diseased tissue—even for the removal of bone. The instrument should be used with great care, and be brought to a white heat when removing sensitive dentine. The operator should be careful not to attach the instrument to a tooth not to be operated upon, and not to let it touch any part of the tooth except that to which he wanted to apply the heat.

Prof. Wm. A. Hammond, said that the application of electricity to surgery was not exactly in his line; but some ten years ago he had used the cautery in a little difficult case with success. The patient had a fistulous opening in the palate. Those who had tried to close a fistulous opening in the palate, knew how much more apt they were to wound the soft parts that were healthy than to get the needle into the hole. After the loop had been introduced into the opening, however, the circuit was closed by a little mechanism, and the operation completed. While he was not now so enthusiastic in his ideas of the medical value of the battery as he used to be, yet he still thought that the applications of it to surgery would become more extensive, especially in operations about the mouth. For the removal of certain kinds of aneurisms, it was certainly of great value.

At the conclusion of these remarks, the paper of Dr. E. D. Miles was discussed.

Dr. A. P. Merrill said that the preservation of the teeth was a part of dentistry which was somewhat neglected. The labor was poorly paid for. By an effort on the part of the profession, the scale of prices for cleaning the natural teeth could be generally advanced, and made to pay them to attend to the matter.

Dr. Perry said that he had established in his practice the rule to charge by the hour in all operations, and in that way the cleaning of teeth was just as profitable to him as filling them.

Dr. J. M. Riggs said he feared the dentists were running into specialties too much. If the thing continued, patients would soon be running from one street to another, first to one specialist, and then to another. Very few dentists, however, spent the proper time in cleansing the teeth. Brown tooth powder should not be used; it would break down the coat of enamel. The cleansing of the teeth was neglected, because the dentist did not get enough for the work. The question was often asked: "What do you charge for cleaning teeth?" It was a common answer: "Fifty cents!" [Laughter.] They could go into half a dozen offices in Hartford, Ct., and get their teeth cleaned for fifty cents. No operator wanted to spend his time in polishing the teeth, and stopping the secretion that lodged upon the gums, without a fair remuneration for the work.

In cleaning these teeth, he shaped a stick, about the size of a pipe stem into a wedge—shaped chisel about one eighth of an inch wide, and dipping the stick into a mixture of pulverized pummice stone and water, polished the surface of the tooth, until he had removed all the roughness about the gum; and when there was a disposition for the brown coating to reappear upon the tooth, he would go over it a second time,—a third time being rarely needed. This could not be done in fifteen minutes, nor for fifty cents. [Laughter.]

The teeth should be attended to in time. If they were all jumbled up together—very much crowded—some popping out above the arch of the jaw, the laterals perhaps depressed, or half of the six year molars in or broken down, by extracting these at the proper time, the bicuspids would fall back, and the front of the mouth would be brought into the most regular and beautiful order.

Adjourned to meet at the College of Physicians and Surgeons, at ten o'clock on the following morning.

SECOND DAY.—*Morning Session.*

The Academy assembled in the lecture-room of the College of Physicians and Surgeons, at 10 o'clock on the morning of the 20th, to proceed with the second day's work. The President called the meeting to order, and the Rev. Mr. Pratt, of New York, opened the proceedings with prayer. A number of letters had been received by the morning mail, and some of them were read. The first paper read was upon the subject of "The Dental Pulp; its Pathology and Treatment, by W. B. Willmott, D. D. S., L. D. S., F. A. A. D. S., Toronto, Canada.

Rev. Mr. Pratt read the paper for the author, who was unable to be present on account of sickness. We give the paper in full. (See article on "The Dental Pulp," in this number of Journal.)

Discussion.

Dr. Aba. Robinson, Georgetown, Mass., said that Dr. Willmott's paper was the best upon the subject that he had ever heard. He had felt a deep interest in it, for the reason that he was one of the early ones to advocate the preservation of the pulp where it was exposed. He advocated the matter before a dental society as far back as 1851. A set of aphorisms had been introduced by members of the society at a meeting in that year. The chairman of the committee on those aphorisms was Dr. E. J. Dunning. It was said that when a pulp was exposed, the tooth was lost. He would not consent that those aphorisms should be passed without opposition. At that time he had practiced the preservation of the teeth when the pulp had been recently exposed. He adopted a method of treatment that was almost uniformly successful. He first bored the tooth, then dropped upon it two drops of collodion, which left a smooth elastic coating over the exposed part; then he would take a few folds of foil, and lay it upon the part, and around it, avoiding pressure, and so leave it without other protection, until he could get far enough above it to leave a solid filling. In nine cases out of ten, he saved those teeth without further trouble.

Dr. Samuel Welchens, Lancaster, Pa., said he took pleasure in adding his testimony to the excellence of the paper just read. There was nothing for him to discuss in the paper except where the writer spoke of using the chloride with creosote. He had often found occasion to use creosote, but he used the oxy-chloride of zinc with the creosote. After devitalizing the pulp, where it sloughed, he invariably extirpated the whole of it, and filled the foramen either with oxy-chloride of zinc, or Guilloi's cement. He would then cover with metallic filling.

Dr. W. S. Elliott, Goshen, N. Y., said that in the treatment of the dental pulp practitioners differed. Some used oxy-chloride of zinc; others used substances such as sponge, wood, paper, etc., but in nine cases out of ten they would say that they used creosote. Why did they use creosote? What was its prophylactic action upon the pulp? That was the point upon which he wanted to give his theory. Creosote precipitated albumen. The pulp being held in contractive tissue, the first phenomenon upon the application of creosote was contraction, and as the blood column returned and filled the vessels, it came in contact with the creasote, and the effect was the precipitation of the albumen. In the precipitated albumen was a mass of entangled fibrin. This was nature's first step in the construction of new tissue. The fibrin having vital properties of its own, was able to carry on the function of nutrition to a certain extent; to this was united the function of the red corpuscles; and they worked upon the precipitated albumen, which was a floor for the new tissue to be built upon. If the parts had not been too much disturbed in the first place, nature would take up the organized soft tissue, the lime salts would be deposited, and secondary dentine would be formed. That was the theory.

The next paper read was entitled: "Necessity of Dentists in the Army and Navy." By A. P. Merrill, D. D. S., F. A. A. D. S., New York.

He said that the subject of his paper had been under consideration by both Houses of Congress since "1868," when the first bill was introduced by Senator Hamlin, of Maine. Although no action was taken, other than having it referred to the committee on military and naval affairs, yet the importance of some legal provision to meet this much needed requirement had been so agitated that partial success was already obtained. That skilled dental surgeons had been essential at West Point and Annapolis all agreed and that the soldiers and sailors in the more humble sphere of the service should be equally considered had been made evident. A petition was introduced into the 42d Congress, calling attention to this matter; and upon its presentation a bill was introduced into Congress by the Hon. Dwight Townsend, and read twice, which was referred to the military committee, and urged to be reported back to the House to be taken up and passed; but as this was a new feature in the service, and selfish influences were brought to bear against it, the bill was held back.

It was time that this subject should be again taken up by the better part of our physicians and specialists, and urged forward. In France the subject had been considered favorably, and it had also been brought before the government of England, and sanctioned by her best military officers and surgeons. No government could afford in this enlightened nineteenth century, while demanding of its soldiers good sound teeth on entering its service, to place them where they could not have the advantage of first-class dental skill.

Discussion.

Dr. Geo. H. Perine, said that some of those present would remember that during his editorial connection with with a dental journal, in 1858, he had called the attention of the profession to this subject. He thought that the French originated the question, but the American dentists were the first to give it character. The English and French governments had partially recognized the necessity of dentists in the army and navy. It was not the officers of the army and navy that required the services of army dentists so much as the common soldiers. The officers were able to pay for the dentists' services, but the soldiers were not. The American Academy of Dental Science had this matter in hand, and they would succeed in it. [Applause.]

Dr. I. J. Ketchan, New York, said that the matter of attending to the soldiers teeth could not be expected to be done by the surgeon, any more than any general practitioner in New York could be expected to treat a case of disease of the eye or ear. The physician could not enter the domain of the dentist without having had the special training required. The health of the soldier should be considered in every way. The Government, in surrounding a man as it did with its laws and rules, was bound to attend to his physical needs. The question was a very important one, and should be acted upon.

Dr. A. P. Merrill said that in the army the medical profession were not as liberal in regard to this question as were those outside of it. The petition he had read had been prepared through the instrumentality of some of his friends, and it had been signed by such prominent names as had been connected with the army as surgeons. By carrying this matter through, they would render a great boon to the soldiers. They had partially conquered already, and they must succeed. [Applause.]

The next paper read was entitled, "Mechanical Denistry." By C. S. Hurlbut, D. D. S., Springfield, Mass.

He said that "Mechanical Dentistry," deserved their respect, at least, if for no other reason than that it was the parent of the dental art. While the profession had made rapid strides in development and attainment, this progress had been mostly confined to operative dentistry. Mechanical dentistry had been neglected, but he thought the time was fast approaching when it would take its proper place in the estimation of the profession.

After the reading of this paper, an adjournment was had until 2 P. M., the meeting first passing a resolution tendering its thanks to the Trustees and Faculty of the College for their courtesy and kindness to the Academy, and for the encouragement they had given those who were trying to bring about the recognition of dentistry as a specialty in medicine.

Afternoon Session.

The proceedings were commenced by a discussion of the last paper read at the morning session, "Mechanical Dentistry," which was participated in by Dr. S. S. White, Phila.; Dr. W. S. Elliott, Goshen, N. Y.; Dr. Samuel R. Stuart, Akron, Ohio; Dr. A. W. Kingsley, Elizabeth, N. J. During the discussion Mr. Geo. J. Pack, gave some valuable and interesting information on GOLD, treating of its condition under many different circumstances, and answering many questions of the gentlemen present.

Dr. John M. Riggs, Hartford, Ct., then read a paper entitled, Suppurative Inflammation of the Gums, and Absorption of that Tissue and Alveolar Process." This was followed by a paper, by Dr. W. S. Elliott, Goshen, N. Y., upon "Physics and Physiology." The discussion of these papers was omitted for want of time.

The hour of adjournment having arrived, Dr. Geo. H. Perine, the President, said:

Gentlemen: In view of the remarks I made to you in the opening session, when I bid you heartily welcome, it is now fit, as we are about to part, that I should congratulate you upon the work you have accomplished, and upon the position which the dental profession has attained here in New York. We are just on the eve of a new era. Here in New York the medical profession are ready to receive us. Have we, as a young body, been too forward? Gentlemen, we have reason to feel that the influence of the Academy has been felt in all quarters of the globe. I am happy to be privileged to-day to say these few words to you, and I hope that before long we may again gather together, and have as equally profitable a session as this has been. Thanking you all, the Academy will now adjourn to the next regular meeting, on the third Tuesday of the coming month.

ARTICLE II.

The Dental Pulp, its Pathology and Treatment.

BY J. B. WILLMOTT, D. D. S., L. D. S., TORONTO, CANADA.

Read before the American Academy of Dental Surgery of New York.

Perhaps there is no subject now prominently before the dental profession which excites more interest in the mind of the intelligent and inquiring practitioner, than the pathology of the Dental Pulp, and the most successful means of meeting pathological conditions which it presents.

In this paper it will not be so much our object to point out modes of practice, as to discuss the principles which underlie the practice, which, with slight modifications in individual cases, is now almost universally adopted by reputable practitioners, and which has on the whole, been reasonably successful.

In this field we have no expectation of being able to present anything which is not already quite familiar to most gentlemen present; we do hope, nevertheless, to so present facts and well known principles as to awaken thought, provoke discussion, induce more thorough examination and fuller investigation, and thus indirectly be the means of adding at least one atom to our stock of professional knowledge.

For our present purpose, we may describe the Dental Pulp as a pulpy mass of reddish gray color, composed of blood vessels, nerve filaments and connective tissue, and occupying the central portion of the tooth. A large portion of the bulk of the pulp being made up of the convolutions of the capillaries and nerve filaments, it is highly vascular and exceedingly sensitive.

As would be naturally inferred from its anatomical arrangements it is very susceptible to the action of irritants. In its normal conditicn it is admirably protected from external influences by a wall of dentine, which, in its turn is surrounded by an osseous structure still more dense,—the enamel.

Within the cavity formed by these walls, the pulp is enveloped in a membraneous sac, which forms the lining membrane of the pulp chamber, and is continuous with the periosteal membrane investing the root of the tooth. The pulp itself is connected by the minute opening at the apex of the root with the nervous and circulatory systems. While the pulp and its surroundings are in a physiological condition, it performs its appointed functions with a quiet unobtrusiveness worthy of all admiration.

When, however, its privacy is violated, it promptly resents the insult by inflicting upon its unfortunate possessor the most intense agony, aptly denominated by the Scottish bard "The hell o' all diseases."

However varied may be the causes which bring about a pathological condition of this structure, the condition itself is one of inflammation, modified by the circumstances under which it exists, or it is the effect or result of inflammation. The primary causes of inflammation of the pulp and the consequent odontalgia, may be described as either external or internal irritation. Internal irritation is due to the presence of osseous deposits, either in the substance of the pulp in the form of nodules, or on the walls of the pulp chamber. The diagnosis of this pathological condition is often obscure.

When, however, in a tooth free from caries, or from caries sufficiently extensive to account for the trouble from external irritation, continuous pain located in the crown of the tooth is experienced for a considerable period, and without any soreness or percussion or other indications of periosteal trouble, and which cannot reasonably be ascribed to any reflex or sympathetic nervous action; and especially if the pain is not noticeably increased by heat or cold; we are warranted in suspecting some internal irritation. In my own practice this condition has always been associated with an unusually well developed tooth structure.

The treatment indicated by this diagnosis,—the cause being beyond our reach, would of course be to drill down and destroy the pulp, and after carefully removing it, to fill the canals and pulp chamber in the usual manner.

Of external irritants we may notice mechanical violence, thermal changes conducted by metalic plugs, and mechanical irritation, caused by foreign matter being brought into contact with the pulp in consequence of its exposure by dental caries.

In the inflammation resulting from the first of these causes, the treatment will be to allay the inflammation by soothing and cooling topical applications, and by appropriate general treatment where this may seem necessary. If, however, it cannot be terminated by resolution, it is better to devitalize the pulp than to risk periosteal complications by permitting it to end in suppuration.

In the case of thermal changes, it would seem to be wise at once to remove the filling, and after subduing the inflammation, to refill, interposing between the filling and the floor of the cavity some non-conducting substance. For this purpose the preparations of gutta percha are admirably adapted.

By far the most common cause of inflammation of this organ, is the presence of foreign matter in cavities of decay, acting either chemically or mechanically upon the exposed or nearly exposed pulp. When a case of this nature is presented for our consideration, our diagnosis must necessarily be rather inferential than direct. From the nature of the case, digital or accurate optical examination is impossible, and we are obliged to fall back on symptoms and principles. In a case of odontalgia, arising from the causes just named, from a consideration of the symptoms present and the physiological principles involved, we infer that the pulp is highly conjected, the capillaries distended and engorged, and the delicate sensitive nerve filaments pressed with considerable force against the unyielding walls of the chamber, producing the intense suffering complained of.

The exact stage at which the inflammation has arrived, is at once important and difficult to determine. We must be guided in great measure by a history of the case. If the pain has recurred frequently, and through a period of several months or even weeks, the probability is, that suppuration has taken place, resulting in a greater or less loss of substance. This condition will be more certainly indicated if the dentine surrounding the point of exposure lacks sensibility; or if passing an instrument or dry pledget of cotton over the floor of the cavity, give no increase of pain; while pressure upon a pledget of cotton saturated with saliva, increases the suffering. Notwithstanding the not infrequent declaration of eminent practitioners to the contrary, my own decided opinion is, that in such cases where a portion of pulp substance has been lost by sloughing, there is no reasonable hope of preserving the remainder alive for any considerable length of time. The experience of sixteen years practice, has only served to confirm opinion formed many years ago, that the only safe course in such cases, is the extirpation of the pulp. If, however, the inflammation has been recent, and the introduction of an instrument or dry pledget of cotton increases the pain we conclude that it is still in an acute state, without loss of substance amenable to proper treatment. This inflammation being a purely local lesion, does not usually affect the general circulation, although in some temperaments the suffering endured does produce very marked constitutional disturbance, which must be treated on general principles. The indication as a rule, however, will be toward a local treatment. The first step will be to remove as perfectly as possible, the exciting cause of inflammation, by carefully syringing out the cavity with warm water.

The further treatment involves a consideration of the theory of inflammation. Without waiting now to discuss the various theories which have been propounded, or presuming to pronounce dogmatically in favor of any, we assume that it has been demonstrated by experiment, under the microscope, that the first effect of irritation upon contractile tissue, is contraction.

The irritation being continued, forced contraction ends in exhaustion, and as a consequence, relaxation. In the case of capillaries when relaxation takes place, the ordinary pressure of the arterial circulation distends them with blood, and in their exhausted condition they are unable unaided, to at once regain their normal condition, and an increased volume of blood flows through them. Accepting this theory, it follows that the increased determination of blood to the part, is the result of a distended condition of the capillaries, brought about by exhaustive contraction. If this assumption be correct, the obvious course of treatment in purely local inflammation, would be such topical applications as will assist in restoring the contractility and normal function of the capillaries. In general practice these conditions are found to be satisfactorily fulfilled by the stimulating astringents, such as solutions of chloride of zinc, acetate of lead, nitrate of silver, etc.

In inflammation of the dental pulp, however, better re sults have followed the use of creosote, carbolic acid, thymol, oil of cloves and similar remedies, which possess more or less of the anæsthetic property, in addition to their antiseptic and stimulating properties. The therapeutical action of these remedies is not well understood, and though extensively used for many years their use is still largely empirical. With most practitioners, probably the best reason that can be given for their use, is that observation has demonstrated that in dental practice, under favorable circumstances, they do assist in terminating inflammation by resolution.

Theoretically it would appear to be correct practice in using these agents, and especially carbolic acid, to apply them lightly and repeat the application with sufficient frequence to sustain the stimulation of the capillaries, until their normal function became restored, rather than to apply a strong solution or large quantity, cauterizing the tissue and in their depressed and abnormal condition favoring death and suppuration. In cases where the engorgement of the vessels has forced the substance of the pulp into and through the opening into the cavity of decay, a gentle pricking sufficient to cause bleeding before any topical treatment is attempted, will be found of decided advantage.

If in addition to the local symptoms presented, there is an evidently congested and clogged state of the excretory organs, the administration of an active cathartic, or sudorific, or both, will materially assist in bringing about the desired result. The pulp being restored to its physiological condition it becomes necessary to protect it from further irritation. This can only be accomplished by permanently filling the cavity of decay. The resources of the dental art have not yet furnished us with a material in all respects perfectly adapted for this purpose. What the conditions present indicate, is a material sufficiently plastic to be perfectly adapted to the wall of the cavity without pressure, and at the same time unirritating to the soft tissues, insoluble in the mouth and a bad conductor of thermal changes. Such a material our dental laboratories have not yet supplied us. The best that is available, is perhaps some of the preparations of the oxychloride of zinc.

To be effectual, these must be used in such a way that the chloride does not come in contact with the pulp. This can be secured by covering the point with a paste, made of oxide of zinc and creosote, and applying over this the oxychloride cement—covering this in turn with a permanent metallic filling. Of all the various suggestions for capping exposed pulps, this method probably offers the most encouragement in our efforts to permanently restore to comfort and usefulness a tooth in which caries have progressed until the pulp has become exposed. Time was, in the history of dental science, when the presence of an inflamed and painful pulp was, by good operators, deemed a sufficient excuse for extracting the tooth. Haunted by the ghosts of the thousands of mastications thus slaughtered, or moved with compassion for the sufferings of his patient, thus doomed to be deprived of what nature designed to be both an ornament and a necessity, some radical practitioner suggested the possibility of devitalizing the pulp, depending upon the periosteum for the nutrition of the tooth, and then filling the canal, pulp chamber and cavity of decay; and thus restoring the tooth otherwise devoted to destruction, to comfort and usefulness.

Later, the conservative practice of attempting to reduce the inflammation and preserve the exposed pulp, has been very generally adopted. With the tendency to run into extremes, which unfortunately characterizes our profession, pulps are now capped so indiscriminately, and as a consequence, with a result so unsatisfactory, that already there are many symptoms of an early return to the heroic practice of devitalization. In many cases, doubtless, failure results from want of skill or want of judgment. In most cases probably when pulps have died under an oxy-chloride filling, and when the primary conditions were favorable, the failure has resulted either from proceeding too rapidly, and capping before the normal condition of the pulp had been restored, or from applying the capping in such a way as to irritate the pulp, producing congestion, inflammation, strangulation and death.

In the great majority of cases where death occurs under these circumstances, it takes place within a comparatively few hours after the operation. It is hardly probable, as has been suggested by Dr. Dudley, of Massachusetts, that death is due to the presence of arsenic in the oxide of zinc. The rapidity with which the hydrate crystalizes, would seem to preclude the possibility of death resulting from this cause. The unfavorable results which not unfrequently follow the operation of capping, in the hands of the most skillful operators, would indicate that failure was due to the unfavorable conditions under which the operation was attempted. To be able to decide when we may safely and successfully cap, and when it is the best practice to devitalize is of the greatest importance to every operator.

In consequence of the exceptional anatomical relations of the dental pulp, it is impossible to predicate any course of treatment upon what has been found to be successful in case of inflammation of other parts of the body. In the case of the inflammation of other soft tissues, the blood has free ingress to, and egress from the effected part.

The absorbents too are present to attempt the removal of any effusion which may take place. Under these circumstances, unless the conditions be very adverse, the tendency is to termination by resolution. In the case of the dental pulp, however, the only means of access is through a minute opening in dense unyielding osseous structure, through which not only the artery, but the nerve filament and the vein have to pass. The result of any considerable or long continued inflammation of the pulp, will produce such an increased determination of blood to the part as will so expand the artery, as to press with sufficient force upon the vein to perfectly close it, producing strangulation and consequent death of the pulp. Due consideration, will, we think, sufficiently demonstrate that nearly if not all pulps, dying from inflammation, whether caused by thermal changes, exposure, arsenic, cobalt, or from any cause whatever, die by strangulation. On this hypothesis we can account for the tendency which observation has shown to exist in acute inflammation, occurring in the pulp of a tooth, finally to terminate in death. At the same time it is proper to observe that in rare cases inflammation may recur again and again, sometimes terminating by resolution and sometimes by suppuration, and yet the tenacity of life in the pulp is so great as to survive for months and even years. In these instances it is quite probable that the opicial opening is abnormally large, and thus strangulation is avoided. On this supposition we may account for the difficulty which we sometimes experience in destroying a pulp with arsenic. In the early stages of these cases, capping would probably always be successful. Notwithstanding the peculiarly sensitive nature of the organ, and its exceptional anatomical relations, experience has demonstrated that when the exposure is but slight, the inflammation recent, the vital force strong, nutrition of the system good, constitution untainted by scrofula or syphilis, and not least in importance, when the patient attends punctually upon appointments, by proper medication the pulp may be restored to a physiological condition, and by a proper protection may be preserved in that condition. Experience teaches us on the other hand, that if the exposure is large, the inflammation long continued or of frequent recurrence, a portion of the substance of the pulp destroyed by suppuration, the circulation weak, the nutrition defective, the condition anemic, the constitution tainted, the system generally out of tone, or when any cause exists which would have a tendency to defeat our treatment, we will conserve our own interests as well as the interests of our patients, by destroying and removing the pulp, and replacing it with a proper filling.

On a consideration of the whole subject, we epitomize:

1. That the only pathological condition of the dental pulp of special interest to us, is that of inflammation.

2. That this inflammation is subject to modifications of constitution, temperament, cause, extent, duration, etc.

3. That the natural tendency is to terminate in death of the part.

4. That this tendency is mainly due to its anatomical relations, which lead to strangulation.

5. That much of the difficulty in successfully treating this inflammation, is due to this peculiarity of anatomical relation.

6. That experience teaches, that under favorable circumstances, exposed and inflamed pulps can by proper medication, be restored to a normal condition, when after capping, a suitable filling may be introduced and the tooth restored to comfort and usefulness, and be preserved in this condition.

7. That theory as well as observation teaches us, that where conditions are unfavorable, or where from any cause a reasonable doubt exists as to the success of the operation, it is both wisdom and good practice to give our reputation the benefit of the doubt and devitalize.

SELECTED ARTICLES.

ARTICLE III.

Celluloid.

JACKSON, MICHIGAN, SEPT. 22ND, 1875.

Mr. Editor:—

In looking over the September number of your well written *Journal*, I noticed an allusion to the prosecution for the use of celluloid in dentistry, and a hint as to its infringement of the John A. Cummings patent, of 1864. This calls to mind a circular shown to me by Dr. J. A. Robinson of this city, in which *Josiah* threatens that he will prosecute any dentist who shall have the temerity to refuse to take a hard rubber license, and use in lieu thereof celluloid, or that its use as a base or otherwise in artificial dentures is an infringement of the Cummings patent. At that time I paid very little attention to it, considering it some of the vaporising effusiveness of Josiah uttered while smarting under the castigation he and the Cummings' patent received in the Willis case at Detroit, when he undertook to force the Michigan dentists to pay royalty for the use of his pretended Cummings' patent. I paid very little attention to it; but since that time having been frequently inquired of by dentists, both in writing and in person, whether the use of celluloid was an infringement of that patent, my invariable answer has been *no*, without giving the reason for my belief, and knowing that many dentists were using this substance instead of rubber, the article in your September number prompted me to write this article, which, should you deem of sufficient importance, you are at liberty to print. My reasons for saying that celluloid use is no infringement of the Cummings' patent is two-fold:

First.—Because it is neither rubber, vulcanite, gutta percha or allied gums; it cannot be compounded with sulphur or iodine, not vulcanized, neither is it a soft plastic substance hardened by vulcanization—Cummings' patent is for the use of "rubber vulcanite or allied gums, mixed with sulphur or like substances and vulcanized by the process of Goodyear." The allied gums are those exuding from tropical shrubs or trees, differing only from each other in soil and climate, like the various gums of the fir trees, that yield in some climates balsam or tar, while in colder climates and different soil they exude pitch and rosin. The allied gums contain all the necessary ingredients for use, while celluloid is collodion, gun cotton and camphor, rendered dense by a high process of condensation, and is now vulcanizable. In the argument of the Willis' case before the full bench of judges in the United States Court last November, speaking of this Cummings' patent,—see Burt's argument printed on the history of Dental Legislation in America, page 804, &c.—I said, "If your honors please, among other things I contend that this patent is void for uncertainty, and for covering too much ground. Pray what are allied gums? as claimed in the re-issue of this extraordinary fraud, called a patent. Can it be possible that our patent laws go to the romantic extent of foreclosing all and every device or product that the ingenuity of man may seek out, for each and every compound that this man Bacon shall claim to be "an allied gum." Under this, to say the least, very ambiguous and very general word, allied gums, if such is the law, and this most extraordinary worded claim can be sustained without doing violence to the well established rulings and precedents, the next thing your Honors will be called upon to enforce, will be punishment as infringers for these dentists who use celluloid for dental purposes."

By the court, Judge Emmons interrupting, "I hardly think, Bro. Burt, that any well posted patent lawyer would take such a position. I understand that the process, compound and product, is entirely dissimilar, how is that Bro. Lee? (Mr. Bacon's solicitor,) Mr. Lee—" If your Honors please, we do not, or ever claim the use of celluloid to be an infringement of our patent, it is not an allied gum, it is not a natural, but an artificial gum, and Bro. Burt need give himself no trouble on that score. *We claim only those natural Gums* that are, or can be, vulcanized by Goodyear's process, or in the language of our patent, a soft and plastic substance of rubber or allied gum, that is hardened by vulcanization, which celluloid is not."

So you see, that before full bench of judges, who were willing to go (as we think) a great way to sustain this, in my judgment, most infamous swindle, the Cummings' patent were *startled* at the idea of extending it to celluloid—-and Bacon, by the most solemn and binding act, before that high tribunal, conceded that the use of celluloid *was no* infringment of the Cummings' patent; but now when he finds that celluloid is a dangerous rival, that the dentist who formerly paid him royalty, declined to buy his patent or use rubber, and that by his dishonest course of litigation, he has killed the bird that laid the golden egg, we must expect from this mercurial and volatile little fellow, some ebulitions of wrath; so let him roar; there may be wind, noise, and dust, but no shower; he has too much good sense to begin *such* a fight, and, then too when the celluloid company are ready to back up the refractory dentist who does disobey *Josiah's* mandate—it won't win. Bacon beat us with his everlasting patent, and the money wrung from the labor and genius of the dentists, verifying the old adage that every dog must have his day. But rubber and the Goodyear Horse Leach, spoken of in Holy writ; is dead; celluloid—killed—and poor Josiah is the principal mourner. So mote it be.

Since writing the above, which I had intended for the October number of your journal, I have received a printed circular from Josiah (which I presume he has sent to all the dentists) threatening direful punishment for infringment to those who use celluloid without a license, ridiculing Bro. Baldwin, and charging him with ruining the dentists, and which seems to call for a word of caution to all dentists. Remember how he beat us in the rubber fight, by obtaining by negligence or connivance several decrees, which were either neglected or poorly defended, and then claimed as real bona fide cases, and the cry of "re-adjudicate" set up in bar of our proceedings. He does not sue any one in Michigan, and I hope this warning will reach the dentists of other states; if sued, send at once your papers to the Celluloid Company, who I understand will defend all who use their manufactures. Don't let him get an inch the start and you have nothing to fear. Respectfully, &c.,

C. C. Burt, late Solicitor for the Dentists.

—*Missouri Dental Journal.*

ARTICLE IV.

The American Dental Association—Fifteenth Annual Session.

Fourth Day—*Morning Session.*

The association was called to order at the usual time, the vice-president in the chair. After unimportant routine business, the subject of "Mechanical Dentistry" was taken up, and a report on that subject was read by Dr. Rehwinkel. We give a synopsis, as follows:

The report alluded to the apathy shown in reference to this branch of the profession, and the disposition on the part of some to separate it entirely from the operative department; a state of things which is deemed to be due to the fact that cheap bases have taken the place of gold, and to the want of fostering care on the part of societies. The disgust of the best men with this branch was deprecated, and it was inferred that ere long a formal question as to separation will be proposed, which it is to be hoped will not be hastily decided.

The committee deemed a porcelain plate the highest form of art in this department, although its use must necessarily be limited to a few experts; next to this was placed continuous gum, which is more practical. If not prepared to complete the process himself, the dentist can send it to those accustomed to the furnace, and this plan produces excellent results. That this work is not more demanded is the fault of the dentist; for any reputable practitioner has influence enough to introduce it. A combination of gold and rubber or celluloid stands next in rank, combining the advantages of each. Aluminum has not proved as useful as was hoped. Cheoplasty has never obtained popularity, and, though successfully used, does not seem likely to be *the* substitute for rubber. Watt's and Talbot's metals were spoken of as most likely to be valuable, and the method employed by the latter gives most satisfactory results. The improvements in celluloid were next spoken of, and the committee were glad to say that it has ceased to be an experiment, promising to supersede all other cheap bases. Its advantages—its beauty and lightness, and the absence of injurious effects upon the mouth—were spoken of, as well as the opportunity it afforded for using plain teeth. One member of the committee had worn a plate of celluloid for more than three years which, though of the first material and made by a novice in the work, has stood well to this day. The steam and dry heat methods of working were mentioned, and the last named spoken of as rapidly gaining favor, and possessing advantages, especially in regard to the welding of different pieces, and repairing.

The experiments of D. M. Lamb, of London, Canada who has succeeded in obtaining a vulcanizable gum from milk-weed,—which it is claimed is a successful substitute for rubber—were referred to.

The subject being open for discussion,—

Dr. Stockton said that he had been gratified at the reference to continuous gum. No work is comparable to it. Our colleges turn out young men entirely ignorant of this work. Platinum and iridium, in connection with celluloid, is stronger than gold, and makes excellent work. The dry-heat process of working celluloid makes the hardest and best work. One advantage of it is, that it does not require so close attention as the other methods; and, if necessary, it can be left for an hour or two without injury.

Dr. D. D. Smith. This subject is so kept in the background that there is little encouragement to speak upon it. Operative dentistry only seemed worthy to be discussed and yet there are failures in that department, and patients are continually losing their teeth and being thrown upon the resources of the mechanical department. The two branches cannot be separated, at least in our day. The speaker then presented a set of teeth from one of the best operators in the country, in the construction of which every principal of mechanical dentistry had been violated, and proceeded to point out the manner in which many principles are violated by those who attempt mechanical practice· He spoke of the preparation of the mouth, arrangement of the teeth, and the manner of articulating them. If only one tooth remains in the mouth, with no antagonist, the first principle should be to extract it. The teeth should never be arranged in a horse-shoe shape, and the articulation should be such that the pressure would be equally distributed upon all the teeth.

We have fallen down and worshiped at the shrine of rubber until progress has nearly vanished. Indolence and a love of gain join hands. A few discard it; but the saddest part of it is that only that exactions of the Rubber Company seem to be taken into account in our discussions. If rubber king, then let us bow to law; if it is the material of all others, let us claim and use it; but if not, then let us abandon it for what is better. The Philadelphia Dental College teaches continuous-gum work and metal more than any other; it ignores rubber as far as possible; we cannot, however, entirely control the matter.

Dr. Abbott said that the New York College also taught this work, and he presumes every college does so.

Dr. Atkinson is astonished at the records of the colleges which show more rubber work than any other.

Dr. McQuillen said our demonstrators are instructed to advise patients who come to the Dispensary for artificial teeth to have them on metal plates, but we cannot compel them to do so when they demand the rubber base; nor are students disposed to do more of metal work than they can help.

Dr. Atkinson said they could compel them to deposit a case of continuous-gum work.

Dr. D. D. Smith. Every candidate for graduation in the Philadelphia Dental College is required to show me a set of teeth in the mouth on a metal base, and to present a similar set for the museum. Sets of continuous gum work are deposited in the museum every year.

Dr. Barrett spoke in regard to the new milk-weed-rubber base. It was plain that some cheap base was required, and this seemed to be the thing, and he believed it would prove a perfect substitute for the ordinary rubber. It was an original discovery, being harder, denser, and, he believes, stronger than caoutchouc. It will not inflame, and is a poor conductor. The company only awaited financial arrangements to place it upon the market.

The subject was then passed, and the Committee on Instruments and Appliances made a report, which was accepted.

INSTRUMENTS AND APPLIANCES.

The following is the substance of the committee's report. Owing to the multiplicity of such articles, and want of time for further detail, the report merely mentioned the articles by name, and gave in some cases the points claimed by the inventors.

Motive-Powers. The Bastet magnetic and the Backus water motors were exhibited.

Dental Engines. Samuel S. White exhibited the S. S. W. engine, also an extension treadle, and an improved hand-piece for engines, the bearings being of hardened steel and far more durable than those made at first.

There were also shown Bonwill's engine, the Elliott suspension engine, Edson & Evans portable suspension engine.

ENGINE PLUGGERS. Samuel S. White exhibited Dr. Buckinham's plugger adapted to the S S. White engine.

Bonwill's electro-magnetic plugger, Gaylord's pneumatic and Swartley's automatic pluggers were also exhibited.

HAND PLUGGERS. Samuel S. White exhibited Dr. Corydon Palmer's complete set of plugging instruments.

Dr. Brockway's smooth-pointed set were also mentioned.

BRACKETS. Samuel S. White presented his improved bracket.

Johnston Bros., exhibited a bracket table.

CHAIRS, ETC. Samuel S. White showed an improvement on the Harris chair, by which the upper section of the back could be quickly removed, thus shortening the back sufficiently for small children; also a detachable arm for this chair, which may be taken off and replaced readily; also an improved foot-board.

G. W. Archer exhibited a chair with a compensating spring, which is wound up as the chair is lowered, and expends the accumulated force in a lifting power.

The B. D. M. Co. exhibited Dr. Hayes's new chair.

Dr. O. C. White exhibited his improved chair with spittoon and bracket.

Codman & Shurtleff exhibited Dr. Cogswell's dental cabinet, which was spoken of as compact and perfectly adapted to the purpose for which it was designed.

Johnston Bros. presented a locking device for the castors of the Morrison chair.

LATHES. Samuel S. White exhibited his new office lathes and laboratory lathes, which were very neat.

VULCANIZERS. The Ransom vulcanizer was shown as combining a vulcanizer and a celluloid packer.

S. B. Brown also exhibited a celluloid dry-heat apparatus.

G. E. Hays presented a celluloid packer which could be used in a vulcanizer.

MISCELLANEOUS. Samuel S. White exhibited—

A dentist's lamp and warm water cup, with foil heater and annealer Dr. Butler's instruments for inserting screws. An improved hot-air syringe, with metal guard for the purpose of giving firm support in the palm of the hand while compressing the bulb with the fingers.

Dr. Hickman's double-lipped rubber dam clamp. Dr. Osmond's clamp mirror. Bowman-Allan's clamp forceps. Dr. Bogue's tape forceps. Dr. Frank Abbott's improved back-action engine. A device invented by Dr. G. H. Cushing, for rotating disks at an angle, was highly spoken of. Dr. Klump's porte polisher for engine. Dr. Huey's improved screw-head mandrel, which substitutes a screw for the ordinary nut in mounting disks. Dr. Butler's corundum points for polishing, and a bur cut like a bastard file.

Codman & Shurtleff exhibited—

A simple and cheap tape carrier, a file carrier, and a mouth mirror of improved construction. An ether and gas inhaler, which was highly spoken of.

Johnston Bros. exhibited—

A dental factotum. An improved gasometer for liquid or ordinary gas. Jarvis's separators.

R. S. Williams showed a device for holding gold cylinders, a morocco case containing glass vials labeled.

Dr. Horton's rubber pouch or bib was shown, designed to protect the clothing of the patient.

The subject of "Dental Education" was then taken up, and opened by the reading of a report by Dr. Keely, the chairman of the committee.

The substance of Dr. Keely's paper is as follows:

The future of dentistry depends upon the efforts now making for the elevation of the standard of professional education. Recognition by the medical profession as a specialty, though desirable, is not indispensable. Dentistry demands a high tone of manhood, thorough discipline of the powers, and a careful and elaborate training. Many of the lights of the profession have not enjoyed such education; by effort and ability they have achieved success in spite of this, but they would have the future members of the profession thoroughly furnished. To assume to practice at the present day without better preparation than the older practitioners, argues a failure to comprehend obligations, or an indifference to them. In the practice of dentistry, the truths of science must be embodied. The ideal and the practical must be brought into combination. In our discussions some lay too much stress upon scientific indoctrination, and others overvalue practical skill. A system of education must be inaugurated which shall harmonize these tendencies. As to the ends to be attained, there is unanimity; but as to the methods, there are various opinions. How shall we be relieved from the dead weight which embarrasses us? Shall it be by penal enactments of the civil power, or shall the profession refuse fellowship with any but the worthy and qualified? and what tests of ability shall be prescribed? How shall the fundamental medical and other knowledge be acquired? shall medical colleges recognize the specialty, and teach it, or shall the dental college call to its aid the medical professor to supply the needed basic culture? Both these methods may be tried, but the dental colleges will, of course, be continued. A question of great importance is, whether our efforts in this direction shall be concentrated on a few, or frittered away on a multitude of starvelings that disgrace the profession, and multiply the half-taught aspirants for honors. The example of literary institutions is before us. Want of resources and competition make their honors worthless, and professional occupations are crowded with incompetents. In our branch three first-class colleges only are needed at present, and this number could be endowed, the ablest professors secured, and ample apparatus and libraries provided. If, however, we attempt to sustain a large number of schools, some will succumb to financial pressure, and leave debts and exasperated feelings behind them; and those remaining will be neither healthy nor vigorous as they might have been. This association should inaugurate an effort to accomplish this concentration.

Dr. Flagg then read a volunteer paper on the same subject.

The subject being open for discussion,—

Prof. Shephard said that he questioned the assumptions made by the last reader (Prof. Flagg,) as to his knowledge of the workings of all the colleges of the country. By his own statements it appears that he is not practically familiar with all. In Harvard College there is no subordination of the dental to the medical, or any other department. They are on a par. They may vary in the estimation in which they are held by the community, but so far as the governing body is concerned they are equal, separate, and independent. It is proper and economical that one man should be connected with both facilities. It is our disgrace that dental colleges have not been endowed. The professors give their services, and find their own museum and apparatus. If the state or a university will furnish apparatus, it should be welcomed, and it should not be charged that we are snubbed or tacked on to the tail of any other institution. The abbreviation D.D.S., though thirty years old, is not to be found in any dictionary, because lexicographers derive their authority from classical institutions, and not from special schools. Time will tell which system will turn out the best rounded men.

Dr. McQuillen would approach the consideration of the subject in a dispassionate manner, independent of the interests of any institution, and in favor of the broadest culture, such as is the distinguishing characteristic of an educated gentleman in any walk of life. He believed in the law of evolution as applicable to the individual man, society, professions, and institutions of learning. Fifty years ago there were only three hundred dentists in our country; many of these had failed in other occupations, and took up with this as an easy means of gaining a living. The artisan came from his trade, the blacksmith from his anvil, the carpenter from his jack-plane and saw, and with little or no preparation entered upon practice. A few only had studied medicine, and, dissatisfied with the condition of the craft, conceived the idea of elevating the standard by establishing departments of dentistry in medical colleges. How were they received? So far from welcoming them, the faculties gave the cold shoulder to the proposition. There was only one source left,—to establish institutions where dental students could receive culture, if only a partial one. When it is considered how much there is to know, it must be recognized that the most learned are only partially educated. The first dental college met with only a limited success. Its faculty, composed of medical graduates, sent representatives to the American Medical Association, and these delegates were treated as the applicants for dental departments had been: the cold shoulder was given them. The speaker then quoted from the printed transactions of the American Medical Association for 1852, in support of his statements. Notwithstanding this experience, if a better course of instruction could now be secured by connection with medical schools, he would not stand in the way, But the question is, Can that be done? In dental colleges theory and practice go hand by hand. But the same facility is not found in the medical schools, indeed, cannot be granted in the general practice of medicine and surgery: and it may be that the dental departments would be equally defective in practical instruction. Medical graduates go out to learn the art of medicine, and woe to the community where the tyro has to practice! The graduate of the dental college is to a certain degree prepared to practice.

Just criticisms of the defects of colleges cannot be objected to, for out of such criticisms good will come; but the innuendoes and false statements that so often appear in regard to them are as unjust as they are ungenerous. Years ago Captain Marryatt, Mrs. Trollope, and a host of other writers of the same ilk overran our country, and, returning to their home in England, wrote works in which they misrepresented and ridiculed our country, its people, government, and institutions, and predicted the speedy downfall of the young republic. Not recognizing that in a young country the efforts of man must first be directed towards securing the necessities of life, the felling of trees, the erection of homes, cultivating the land, etc., and that it is not possible for the arts, sciences, and great institutions of learning to be developed at once,—with none of that charity which is ever characteristic of a generous mind, or that broad generalization which belongs to a great one, they could only perceive and exaggerate defects, and could not recognize the possibilities of the great future which was in store for our country and its institutions. Is it surprising that this class of narrow minds should have had a representative in the dental profession, who, visiting our country, making hasty and imperfect examinations of our dental colleges, on returning to his country, in trying to write them down, only exposed his own ignorance and prejudices? We can pity this manifestation of poor, weak, human nature, and regret that in place of trying to degrade and lower the institutions of another country, he did not rather aim to make for the institution with which he is connected a world-wide reputation by proving himself to the profession an able writer and efficient teacher. But what shall be said of an American correspondent of a foreign journal, who, not having the manhood to write over his own signature, Iago-like, in assailing the fair fame and impugning the motives of others, proves that the suspicious man may be ever justly suspected? When such men are dead and forgotten, the institutions which they have reviled will be rendering valuable services to the profession and to humanity. Communications such as the "Chronicles of the Odontologues" place the profession in America in anything but an enviable position, particularly when a British journal apologizes for republishing such articles, and accounts for the appearance of them to the defective development of our people. If the dental colleges are not what they ought to be, sweep them out of existence. If they fail to properly prepare the student for practice, then close them up. The all-important question is, not whether the student receives an education which will entitle him to recognition on the part of medical men, but whether *he is properly fitted to go forth and serve the community as a practitioner of dentistry.* If dental colleges do this, and he believed they do, they should be encouraged and supported. The best evidence of the value of dental colleges is to be found in the leading position of their graduates at home and abroad.

Dr. Atkinson. We should not dwell so much on methods as results. Foundation principles we must have, but they are of no use till they are practicalized. He prefers dentists to medical men. It is easier to define what is required of the dentists.

Dr. Abbott wishes to defend dental colleges,—the independent schools. He referred to a charge made in Canada that the quacks came from the United States, and that the degree was unworthily granted here. He said the New York College turns out as good men as any other college, and he thought the faculty would compare with any.

Dr. Flagg thought the feeling that had arisen, if allowed to continue, would split the profession. He considered that we were able to hold our own, and we should see to it that we do not go to the wall.

The subject was then passed, and that of "Dental Literature" taken up. The chairman of the committee on that subject, Dr. I. Knapp, read a report, of which we give a synopsis.

The report adverted to the fact that dental literature is creditable to a profession that scarcely a third of a century ago began to study scientific principles; before that date, or even later, a single volume was sufficient to describe all then known to the profession. The field, however, is constantly widening, and the time has come for a full discussion of many subjects from a purely dental aspect.

The report then proceeded to review at some length Salter's work on Dental Pathology and Surgery, lately published, and quoted somewhat freely from it, to illustrate the style of the author, and touched upon his theories of development of dentine. The example of the author in giving only the results of original thought and investigation, instead of a compilation, was commended. His style was stated to be simple, and clear, vigorous; a familiarity with scientific terms being manifest, though they are sparingly made use of. His descriptive powers are good, and it is scarcely possible to mistake him, the salient points alone being seized and brought out. A philosophic tone is preserved and conclusions are stated with judicial candor. The author's views of the histology of dentine were then shown by extracts; he takes the ground that the broad, brilliant ring seen in transverse microscopical sections is an optical illusion; upon the formative pulp is arranged a series of columnar cells, from the distal extremities of which minute tubular threads project inwardly, which are gradually prolonged in the same direction, and separated by a homogeneous blastema; these being the only discovered elements in the formation of dentine. The supposed "fibrils of soft tissue" are the decalcified tubes themselves. The indurated viscid contents of the tubes might easily be mistaken for fibrils. It is deemed highly improbable that the nervous elements distributed to the dentine pierce the walls and occupy the axis of the tube.

The report then proceeded to discuss the theories of Tomes, Wedl, and other authors on the same subject, and further quoted Salter upon the subject of secondary dentine. An extract was quoted in reference to a singular case of crushing the inferior dental nerve, in extracting the dens sapientiæ, which resulted in the paralysis of the teeth, lip. and chin of the right side. The author of the report stated that a similar case had come under his own observation, The sensation had never been fully restored.

The work of Dr. Salter, who does not allow himself to be drawn into the discussion of subjects not immediately pertaining to dental pathology and surgery, and therefore says but little in reference to dentistry proper, is a valuable textbook for students and the more advanced cannot fail to find in it both pleasure and profit.

The report then briefly alluded to the periodical literature of the profession. The readiness of the proprietors of the journals to admit a mass of undigested and often irrelevant matter was regretted, but this was considered unavoidable in view of the fact that the editors were largely engaged in other duties, and receive but a limited compensation for editorial work; they can therefore not be expected to reject articles needed to make up the numbers, or to remodel communications, or prepare original matter. Still, it was stated that fault was justly found, it is feared, with the neglect or imperfect performance of that editorial work which is needed to prevent serious misapprehension of a writer's or speaker's opinions. The journals on the whole were commended as having done a great and good work, second to no other agency. The establishment of a quarterly journal, edited by a writer of varied and profound learning, giving his whole time to the work, and aided by paid articles, would be a long step in the right direction; not interfering with the other journals, but gathering up that which is valuable now scattered through our transient literature, and affording the best minds of the profession a medium for their best thoughts.

The subject of "Pathology and Surgery" was taken up, and, there being no reports,

Dr. Atkinson said that he had gone further into the change from physiological to pathological action than any other, so far as he had read. Inflammation is the process of disease; the vaso-motor nerves keep up the function, and if the blood is equally distributed, nutrition takes place within the capillaries. When sufficient destruction of neurine has dominion, congestion ensues, and circulation is arrested and remanded back to cell-action, and the fluids are thus changed to soft-solids. That is one termination of the deflected function; another is tuberculous deposits. These are inside the inflammatory process. Disintegration continued generates gases, and the absorption of these converts the blood-corpuscles into pus-corpuscles, which are mid-way between building up and tearing down. Then we get corrosion,—ichor, evidence of death, sloughing. The speaker then spoke of the treatment of fever sores, which he would treat with a solution of chloride of zinc, twenty or forty grains to the ounce, and so get union by first intention. We must know what the tissues are on which we are operating, and what they will bear. Every man's work is either worship or blasphemy. There is no such thing asasthenic disease; to talk of it is asthenic nonsense.

Dr. Taft then spoke of the treatment of diseased gums, produced by calcareous deposits on the necks of the teeth. By merely removing these deposits the trouble will not always be remedied, nor will medicaments always relieve it.

Rubbing is beneficial, pressing out the contents of the capillaries, and they will soon take on a better circulation. He regarded salicylic acid as better than chloride of zinc; aromatic sulphuric acid is also useful. Depletion will be beneficial until fresh blood has taken the place of stagnant blood.

The subject was then passed.

The Committee on Nominations made the following report as the standing committees for the ensuing year, which on motion, was concurred in:

Dental Physiology.—J. H. McQuillen, S. W. Dennis, A. H. Brockway.

Pathology.—J. Foster Flagg, L. D. Shepard, I. Knapp.

Chemistry.—S. B. Palmer, J. S. Cassidy, L. G. Noel.

Therapeutics.—W. H. Atkinson, C. A. Brackett, C. R. Butler.

Operative Dentistry.—Frank Abbott, A. W. Harlan, H. M. Reid.

Mechanical Dentistry.—W. N. Morrison, D. D. Smith, W. C. Barrett.

Etiology.—D. C. Hawxhurst, M. H. Webb, H. L. Sage.

Dental Literature.—M. S. Dean, E. D. Gaylord, G. C. Daboll.

Dental Education.—W. H. Morgan, J. N. Crouse, M. Wells.

Prize Essays.—F. H. Rehwinkel, G. W. Keely, H. J. McKellops.

The committee appointed to prepare resolutions on the death of Dr. Hill, of Norwalk, reported the following, which on motion, were adopted;

Whereas, This association has with sorrow learned of the death of our brother, Dr. Asa Hill, of Norwalk, Connecticut; therefore,

Resolved, That we signify in this public manner our sense of the great loss which the dental profession has sustained, and that we sincerely sympathize with his family in their loss.

Resolved, That this resolution be inserted in our minutes and that the secretary be instructed to forward a copy of the same to the family of the deceased.

J. H. Smith,
Frank Abbott, } *Committee.*
A. W. Harlan,

Afternoon Session.

The association met at the hour fixed, four P. M. There being no essays on the subject of "Etiology," that subject was passed and "Therapeutics" taken up.

Dr. Atkinson spoke on the subject of salicylic acid. He said that all concurred in regard to its non-corrosiveness. He dissolves in alcohol to saturation for dressing abscesses and wiping out cavities. It supersedes creasote, and does not destroy the epithelium. It is also useful for stopping hemorrhages. It is nearly inodorous, and also nearly insipid. A solution of the alcoholic tincture in water was a good disinfecting mouth wash and deodorizer of the spittoon. It is also useful as an ingredient in dentifrices, arresting the formation of gases. There was sometimes a disposition to criticise the earnest seeker after truth. He had been enamored with different agents. He had been the first to use creasote in teeth, and had never seen evil results from it in the hands of a level-headed man; he had heard of cases, but would question the manipulation rather than the agent. He knows it is a deadly poison. His first acquaintance with it was in dyspepsia, an aqueous solution, three or four drops to the ounce, and he don't go back on it now, though he has used thymol, and now uses salicylic acid. Bad results are often from want of management; there is a great deal in manipulation, and there is such a thing as want of compatible tension between the operator and the medicine. In salicylic acid we have pretty nearly chased the active principle of creasote into a corner.

Dr. Taft said he had used salicylic acid with great success for some months, and almost every day in some new phase. In cases of chronic inflammation difficult to reduce he had found it useful. In one tooth which had been filled temporarily for eight years, and had alway been accompanied with some soreness, he had cleansed the canal and filled half full with crystals of salicylic acid and the remainder with oxychloride, and the next morning it was better than for ten years, and the soreness had not since returned. He prefers a saturated solution in ether, which dissolves three times as much as water or alcohol. In roots which are exceedingly offensive there was no odor in a few days. He prizes it, and is doing with it what creasote never would accomplish. Has used it for abscesses with similar results. Its great value lies in its antiseptic properties; it decomposes offensive matter. There is no whitening of the tissues as with creasote. It is not necessary that it should be colorless to be efficient. He had used the "dental pain obtunder" with general good results, and had used it several times a day. With it he can cut without pain. Others, however, can find no benefit from it. The active principle of it is horseradish. Aconite and chloroform have a similar effect. Has not found as good results from carvacrol as some have, especially in treating abscess. If we make a pet of a thing we can make it perform tricks for us that it will not for others; and much depends on efforts which we make which are other than physical.

Dr. W. H. Allen has used the "dental pain obtunder" without any results. It makes him positively sick. He wants none of it.

Dr. Stockton said that his patients complained of the smell of it. He has found no benefit from it whatever. He had used salicylic acid successfully. He thought a great deal of the trouble with dead teeth depends upon cleansing them too thoroughly at once, and he does not try to do it.

Dr. Osmond spoke of a preparation called "king of pain," which he was informed was oil of mustard. He has found oil of peppermint very useful for sensitive dentine. In fact, he had never found anything equal to it.

Prof. Flagg has tried all the various oils, and oil of peppermint was the worst thing to make patients howl he knew of; his experience with the "dental pain obtunder" was half-way between that of Drs. Taft and Allen. It does not seem to do much good and occasionally is exceeedingly painful. One remedy will do great things for one person and will do nothing for another. Pond's Extract is a very valuable medicine. In a case of shooting of the hand so badly that it was supposed that amputation would be necessary, the extract had been dropped upon the hand for some hours, and the result was the hand was saved. He is obliged to use allopathic and homœpathic remedies, and this is a quack remedy.

Dr. Shepard said that temperament made a great difference with the use of pain obtunders. The nervous effect is often a great deal. If you tell a patient that you are going to use some wonderful thing, and use only water, it would have a great effect. They don't have such sensitive dentine in Boston; there are only a few patients, mostly young, with whom we care for any obtunder. The miasmatic influences of certain localities render dental troubles more obstinate; they also aggravate inflammation. Has found benefit from the "dental pain obtunder." It often produced intense pain. In one mouth it seemed to do some good, and the same day in the same mouth it did no good; besides, it smelt badly. He is conducting some experiments, and thinks he is on the right track.

Dr. Morrison thought the knowledge of how to excavate, not taking too large chips, and with keen instruments, would succeed best. Had used thymol, etc., and thinks nothing superior to good old-fashioned creasote.

Dr. Knapp said that some agent would be a boon to those operating in miasmatic regions. The "dental pain obtunder" causes no more pain with him than any other cold substance. The teeth that are not sensitive in his region are the exception. Has found lime-water used for three or four weeks very beneficial. Is sometimes compelled to resort to blue pill, quinine, and iron before he could operate without danger of devitalizing the pulp, and he could not treat exposed pulps without so doing. We must eradicate specific poison before we can operate upon the teeth successfully.

Dr. Butler thought the electrical condition might have something to do with it, and perhaps the condition of the operator. The pain obtunder has a sickening odor, but in many cases he has found great benefit from it. Thought the coolness was the cause of the pain.

Dr. C. S. Smith had observed something like constitutional effects from the pain obtunder; it seemed to stupefy the whole system, and he thought it was a powerful drug of some kind and should be used with caution. He had heard it suggested that it was hasheesh.

Dr. Harlan said that it was oil of mustard, camphor, aconite, and ether.

The subject was then passed.

A discussion ensued upon the subject of clinics in connection with the future meetings of the society.

Dr. Abbott moved that we have no clinics.

Dr. Atkinson moved to amend by substituting a resolution of thanks to Drs. Bonwill, Webb, Gaylord, and Klump, who had contributed so much to the interest of the meeting by their operations at the clinic. The substitute was put to vote, and carried.

The newly-elected officers were then installed; and Dr. Northrop, the incoming president, made a few appropriate remarks.

A vote of thanks to the Executive Committee and Dr. Southworth, for their efforts to make the meeting a success, was adopted, and also to the hotels for reduced rates.

Dr. Keely, chairman of the committee on the Barnum testimonial fund, made a verbal report. He said the committee had hoped to be able to close up the matter and make a final report at this session, but they had not succeeded in getting returns from all the subscriptions that had been made. They held Dr. Barnum's receipt for ten hundred and seventy dollars, and had about one hundred dollars on hand; besides which there were unpaid subscriptions to the amount of about one hundred and fifty dollars, which he believed would all be paid up. He asked for another year to finish up the matter; which, on motion, was granted.

The chair appointed as the special committee of arrangements for the next year, Drs, McQuillen, Buckinham, and Pierce.

The association then adjourned to meet in Philadelphia on the first Tuesday of August, 1876.

EDITORIAL. ETC.

Does the use of Celluloid in making Dental Plates infringe the "Cummings Patent."—Decision by Judge Blatchford, on the question.—The Dental profession are familiar with the threats that have been made by Josiah Bacon and the Goodyear Dental Vulcanite Co., as to the infringement of the "*Cummings Patent*" by the use of Celluloid, and have been put to much inconvenience thereby, but until lately, we have had no opportunity to answer their complaint.

We have at all times desired a trial upon the merits of the issue between the Goodyear Dental Vulcanite Co. and ourselves, and we have done all we could to have such a trial reached, and to have the issue disposed of, confident that it would be settled in our favor.

Finally in July, 1875, the Company and Mr. Bacon filed their Bill of Complaint in the Circuit Court of the United States for the Southern District of New York, against Dr. Eben M. Flagg, a dentist of New York City, for the purpose of enjoining Dr. Flagg from using Celluloid in the making of Dental Plates.

The Plaintiff's motion was made before Judge Blatchford for a preliminary injunction against Dr. Flagg, and was fully argued by Messrs. E. N. Dickerson and B. F. Lee for the plaintiffs and by Judge Wm. D. Shipman, Clarence A. Seward and E. Luther Hamilton for Dr. Flagg—every thing that could aid the plaintiffs, either of fact or in other previous decisions in their favor was brought up by the plaintiffs, and after considering the facts and arguments, Judge Blatchford, on December 7th, 1875, denied the motion, and rendered the following opinion:

U. S. CIRCUIT COURT, SOUTHERN DISTRICT OF NEW YORK.

THE GOODYEAR DENTAL VULCANITE CO., AND OTHERS, *vs.* EBEN M. FLAGG.

"I do not find that any decision has been made in regard to the plaintiff's patent which gives to it such a construction as necessarily includes the process and substance used by the defendant. In the Gardiner case the defendant did not compound India-rubber with sulphur, but he compounded India-rubber with Iodine, and he employed heat to harden the rubber. (*Goodyear Dental Vulcanite Co.* vs. *Gardiner*, 4 *Fishers Patent Cases*, 224, 231.)

In the Smith case the view of the Court was that the material to be used under the plaintiff's patent in carrying out the invention patented was to be India-rubber, "and the compounds commonly employed therewith reduced to a soft plastic condition, capable of vulcanization and subsequently vulcanized." (*Goodyear Dental Co.* vs. *Smith*, 5 *Official Gazette of Patent Office* 585.)

It appears, from the description of the process used by the defendant in this suit, that he does not use India-rubber or any substance capable of vulcanization: That the substance he uses is one which is rendered plastic by heat, and is not hardened by heat; That heat is used in the process to soften the substance and render it plastic and not to harden it, and that the substance after being moulded is hardened by being cooled. It is not sufficiently clear that this process is embraced in the claim of the plaintiff's patent to warrant the granting of an injunction until one is awarded as the result of a decree for the plaintiffs on final hearing."

The Celluloid Manufacturing Co. of 295 Ferry Street, Newark. N. J., makes the following request:—We take this opportunity to again request of the members of the Dental profession that they will, in event of any suits being brought against them for the use of Celluloid, send us, without delay, the papers in the case that we may defend the suit, which we will do at our cost.

It is well known that our factory was destroyed by fire in September last, but we are happy to state, that we are again at work, and will be ready to supply dental plates through our agent, S. S. White, Philadelphia, about January, 15th, 1876.

A Strange Freak.—The *New York Herald* states that Miss Sarah Ward, aged 28, daughter of Judge Ward, who resides at Tompkinsville, Staten Island, visited a New York dentist on Monday last to have some teeth extracted, and took laughing gas. She remained under the influence of the gas for a considerable time, and when she finally recovered the idea seemed to have struck her that it would be a good joke to frighten her folks at home by telegraphing to the Rev. A. N. Stanley, rector of St. Paul's, that she was dead. She accordingly sent a dispatch to the rector, who was preaching at the time in observance of St. Andrew's day, that she died from the effects of inhaling laughing gas. The startling announcement caused great consternation among the congregation, the young lady being well known to them all. The services were at once concluded, and word was sent to her father, who hastened to the dentist's place of business, where he was surprised as well as overjoyed to learn that his daughter had but a short time previously left for home in excellent health. When asked by her parents what induced her to send such a dispatch, she said that she did it for fun.

Dying on the Operating Table.—The Albany, New York, *Journal* says, on Thursday last Marcus H. Nelson, of Fort Ann, appeared at Dr. Armsby's office, in that city, and requested treatment for a finger which had been ulcerated a long time. It was pronounced gangrene, and he was sent to the hospital for treatment preparatory to the operation of amputation. On his admission to the hospital his weakened nervous condition indicated that he was apparently bordering on an attack of delirium tremens. On Friday, at the regular hospital clinic before the students, Dr. Armsby exhibited the case and remarked that he would defer the operation until the patient was in a better condition. The third finger of the right hand was black and gangrenous up to the second joint, and the patient was anxious and decided upon having the operation performed at once, affirming that if it was not done to-day he would go elsewhere, as he was determined to have it off: He was accordingly placed upon the operating table before the students, in the usual way, and a small quantity of ether and chloroform of equal parts given him. He inhaled freely, and in a short time manifested the usual stage of excitement, which was neither very severe nor long continued. In about three minutes he was pronounced ready for the operation, when it was discovered that he was pulseless. Immediately every effort was made to resuscitate him, without avail. Artificial respiration was continued for twenty minutes with no result. Dr. Shanks, house physician, affirmed that the quantity of ether and chloroform given was much less than on similar occasions, and the inhalation was in no way different from other cases.

BIBLIOGRAPHICAL.

Transactions of the American Medical Association, Volume 26, 1875.—The contents consist of the proceedings of the 26th annual meeting, held at Louisville, Kentucky, in May, 1875. During this session a large number of interesting papers were read, which appear in full in the present volume, rendering it an exceedingly instructive and interesting publication. These reports of the various committees, although formally accepted and published, are independent, the Association holding itself wholly irresponsible for the opinions, theories, or criticisms therein contained, except when otherwise decided by special resolution. The present volume contains five-hundred and twenty-seven pages.

Vernon Galbray, or the Empiric.—The history of a Quack Dentist. London, E. T. Whitfield, 178 Strand.

This is an amusing tale, professing to be an *expose* of the disgraceful frauds practiced upon the public by the charlatans who call themselves dentists, and the author promises to substantiate every charge against what he supposes some may consider "an exaggerated picture." That people will allow themselves to be the subjects of humbug notwithstanding repeated warnings, is patent every day of the year, and such a publication as this, although perhaps published with the best of objects, will avail but little in correcting the evil.

Questions on the Structure and Development of the Human Teeth, for the use of dental students. By C. L. Ford, M. D., Prof. of Anatomy and Physiology in the University of Michigan. Publishers: Fisk & Douglas, Ann Arbor, 1876.

This pamphlet comprises an excellent series of questions on the alveolar process, blood vessels, nerves, and structure of the teeth, structure of bone, muscles of mastication, development of the different tissues, and comparative anatomy of the dental organs, together with questions on some collateral subjects, such as bones of the head, maxillary sinus, etc. It will prove a useful adjunct to the text books.

The American Agriculturist holds fast to its old name, which it has carried successfully through the long period of *thirty-four years*, and commences the "Centennial year" with the vigor of the prime of life, and with well founded promises of still greater achievements in its appropriate sphere—that of a plain, practical highly instructive and trustworthy family journal. Its name is almost a mis-nomer because it is now equally useful to city, village and farm.

The closing number of volume 34, now before us, like its usual issues, is full of good things, varied in contents, which are prepared with much labor, thought and care, and illustrated with over 60 well executed and well printed original sketches and engravings.—This *Journal* is a marvel of cheapness, beauty and utility, costing only $1.60 a year, postage included, for its more than 500 double pages of useful information, and 500 to 600, or more, of fine engravings. It will interest everyone. Orange Judd Company, Publishers, 245 Broadway, New York city.

Vick's Floral Guide for 1876.—This is a beautiful quarterly Journal, finely illustrated and an elegant colored frontispiece with the first number. The number before us for January, 1876, contains a beautiful frontispiece of annuals, and is a gem. Besides what relates to floral matter, this number contains an interesting account of a trip to the Pacific, with a good description of the monster trees and the Yosemite valley. The guide is published by the well known Florist, Mr. Jas. Vick, of Rochester, N. Y., at the low price merely nominal, of 25 cents a year, and will prove interesting and instructive to all who love flowers and vegetables.

We take pleasure in recommending the excellent seeds furnished by Mr Vick, both flower and vegetable, which are planted by millions of people in America with the most successful results. Mr. Vick also publishes "The Flower and Vegetable Garden," the most beautiful book of the kind in the world. It contains nearly 150 pages, hundreds of fine illustrations and four chromo plates of flowers beautifully drawn and colored from nature. The price is 35 cents in paper, or 65 cents in elegant cloth.

A price catalogue of seeds, etc., is sent free to all who enclose the postage.

Circulars of Information of the Bureau of Education, No. 7, 1875, contains the constitutional provisions in regard to Education in the several states of the American Union.

The Dentists Appointment Book and Pocket Record.—By E. S. Holmes, D. D. S., of Grand Rapids, Michigan. The following explanation will describe the Record:

"Although the design of "The Dentist's Appointment Book and Pocket Record." must be apparent to nearly every one on examination, yet a few words in explanation of its use may be of value to some. The book contains sixty weeks. Commence the year on the day of the first week on which the year begins by filling the blank—as "Saturday" January 1st, 1876—then the days and weeks will come right for the whole year, leaving out Sundays. The first blank column headed "Time," is for inserting the hours of appointments. The next is for the names, and if necessary addresses of appointees. The next for inserting the kind of operations performed, or to be performed, then the fee for each operation in dollars and cents, and lastly, record on the diagram of the mouth, the exact place where the operation was performed. Where several operations are recorded on one diagram, draw a fine line from the tooth indicated to the margin, and mark on it the hour opposite the patient's name.

When examinations are made previous to appointments, it will be found very convenient to make a record of them, so that when the patient presents himself for operations, a reference to the Record will render another examination unnecessary—thus saving much time. Believing that this little "Appointment Book and Pocket Record," contains more labor-saving conveniences for the dentist, in a more conspicuous and simple form than anything else extant, I offer it to my fellows in dental practice, hoping they will enjoy much pleasure in its use.

The Physicians Diary for 1876.—Containing a visiting list diary and daily memoranda, obstetric and vaccination records, etc., etc., with tables of incompatibles, thermometry in diseases, Marshall Hall's ready method, phases of the moon, poisons and their antidotes, list of medicines by Tilden & Co., with doses and formulæ for reducing their fluid extracts to tinctures, syrups, &c. Published at the office of the "*Journal of Materia Medica,*" New Lebanon, N. Y., 1876, in a very neat and attractive form, with gilt edges, and on excellent paper.

The Sanitarian.—A monthly Journal, Edited by A. N. Bell, M. D. Publication office 235 Broadway, N. Y. Terms, $3.00 per year, or 30 cents a number.

This useful *Journal* should be read by all interested in the laws of health. It is admirably conducted and presents monthly a quantity of reading matter which cannot fail to interest and instruct the intelligent and thoughtful observer. Every head of a family is interested in the subjects so clearly and forcibly brought to the public notice in this useful periodical.

The Herald of Health, devoted to the culture of the Body and Mind Publishers: Wood & Holbrook, 13 and 15 Laight Street, N. Y. Terms: $2.00 per annum with premium; $1.50 without.

This is one of the most popular health journals ever published, containing matter which interests all classes of society, and proves useful in many ways to its readers. This *Journal* has now reached its 25th volume of the new series, after an old series of 59 volumes; is printed in large clear type and admirably conducted. Wood & Holbrook are also the publishers of a small, but very interesting and useful work, entitled "Eating for Strength," a new health cookery book, edited by M. L. Holbrook, M. D., which gives every necessary direction for the preparation of simple, wholesome food, with little labor.

MONTHLY SUMMARY.

Croton Chloral Hydrate in Neuralgia.—Dr. Spender, in the *British Medical Journal*, says:—The power of this medicine over neuralgia seems so unquestionable, that I am confident it will soon occupy a leading place among our antidotes to pain. There are certain cases of what Dr. B. W. Richardson calls "neuralgic fever," *i. e.* general neuralgia with some pyrexia, which are completely controlled and ultimately cured by a combination of quinine and croton-chloral. In an instance of this sort very lately under my care, a maiden female, aged 49, I gave a grain of quinine in solution with three grains of croton chloral, in a pill, every two hours during the daytime; and, when the desired success was obtained, the medicines were gredually left off. Moreover, there is this good point about chroton-chloral, that, even if it fail to produce any benefit, it never seems to do any harm.—*Med & Surg. Reporter.*

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ARTICLE I.

Virginia State Dental Association—Sixth Annual Session.

(*Reported Expressly for this Journal.*)

First Day.—Morning.

The Sixth annual meeting of the Virginia State Dental Association was held at Association Hall, Richmond, on Tuesday, December 14th, 1875, at noon. Dr. W. W. H. Thackston, President, in the chair, and Dr Geo. F. Keesee, Secretary.

The Chair announced the presence of Dr. R. Finley Hunt, of Washington city, and invited him to a privileged seat in the hall.

The reading of the proceedings of the last session of the Dental Association was dispensed with, on motion of Dr. W. L. Burton.

Drs. Arthur Wendlinger and Frank L. Harris were elected members of the Association.

On motion of Dr. Burton, the Association took a recess until 4-30 P. M.

Afternoon Session.

The Association resumed its session at 4 P. M.

Professor Hodgkin, of the Baltimore Dental College, was introduced by the Chair to the Association, and invited to a privileged seat.

Dr. G. H. Chewing was, under a suspension of the rules, elected a member of the Association.

Dr. Cowardin, from the executive committee, reported that he had discharged the duties devolving upon that committee—procured a hall and made other arrangements for the session of the Convention. The report was adopted.

The Chair announced that he had addressed letters to the Presidents of the several railroads coming into this city requesting an abatement of railroad fare to the delegates, &c. All the roads had declined such abatement except the Atlantic, Mississippi and Ohio railroad.

On motion of Dr. Keesee, Dr. R. Finley Hunt, of Washington, was elected a corresponding member of the Association.

Dr. Hunt said he felt proud of the compliment, and would do all in his power to discharge the duties and responsibilities.

On motion of Dr. Thompson, Professor Hodgkin was elected an honorary member of the Association.

Dr. Keesee read a letter from Dr. Judson B. Wood, who is now in Baltimore, regretting that he was unable to be present at this session of the Association.

On motion of Dr. Steele the letter was read and ordered to be spread upon the record, and thanks returned to Dr. Wood.

Letters from Dr. N. M. Burkholder, of Harrisonburg, and Dr. John W. Scribner, of Charlottesville, expressing regret at not being able to be present, were read.

The letters were ordered to be spread upon the journal of the Association.

Dr. Steele made a personal explanation relative to the publication of the proceedings of the last session of the Dental Association.

The President next read his annual address to the Association.

[This excellent address will appear in the March No. of this JOURNAL.]

On motion of Dr. Thompson a vote of thanks was tendered the President for his able address, and a copy of his address was requested for publication in the *Journal.*

On motion of Dr. Cowardin it was ordered that Dr. Johnson, of Staunton, be allowed further time to report on Pathology and Surgery, he not having received information of his appointment as chairman of that committee.

Dr. Cowardin offered a chair and instructions for clinical operations, which were fixed from 8½ to 10½ A. M., daily during the sessions of the Association.

On motion the hours for the sessions of the Convention were fixed at from 10½ to 2 P. M., and from 4 to 7 P. M.

The Chair announced that the committee on Clinics for to-day would consist of Professor Hodgkin, Drs. T. L. Sydnor and F. L. Harris.

On motion the Association adjourned until 10½ o'clock Wednesday.

SECOND DAY'S PROCEEDINGS.

The report of the Committee on Dental Pathology and Surgery was called for.

Dr. Johnston, of Staunton, Chairman of that committee, stated that not being aware of his appointment he had not prepared a report.

The subject was discussed by Dr. R. F. Hunt, of Washington, D. C. The subjects of Etiology and Pathology he said overlapped, and there was a difficulty in defining the limits of each, so that our discussion of the one would naturally embrace in part the other. The causation of decay in teeth is caused in a great measure by our general habits of living, our artificial life, our diet, &c., planting in us the seed of decay, in which our teeth share. He alluded with approval to the theory of Dr. John Allen, of N. Y., that the great loss of teeth by Americans was due to the abstraction of the mineral elements from our flour—the remedy being to use unbolted flour more largely. He brought up and discussed the action of the Washington and Baltimore Dental Associations, which bodies had put on foot an organized plan for obtaining statistics concerning the teeth of all the nations of the earth, in which they had endeavored to enlist the assistance of the U. S. Government, and hoped to obtain substantial results that would greatly advantage the profession, and also the public. He incidentally alluded to the fact that the Government had appointed dentists to the Navy yard at Annapolis and West Point, to rank as assistant surgeons.

Dr. W. L. Burton, of Richmond, spoke approvingly of special modes of diet, as influencing the development of the teeth, and alluded to the "Banting" cure for obesity in illustration of the correctness of his views. He had no doubt that a systematic diet would go far towards the formation of good teeth. He stated that his observation had led him to conclude that the teeth of negroes were now much inferior in quality and resistance to decaying influences than in former years.

Dr. Frank Harris, of Harrisonburg, Va., thought that the acidity of the saliva of females in pregnancy, was the cause of their decay at that period, and thought that the administration of the lacto-phosphates of lime, and other preparations of this character would be of benefit. He felt sure that the rising generations would see the result and be benefitted by our efforts; and that the time must come when the efforts of science would result in an improved condition of the teeth of our posterity. He considered the lack of the phosphates of lime in the system, the great cause of the defective teeth of the present generation.

Dr. T. L. Sydnor thought that decay was not the result of chemical action, but that causes back of this were in operation.

Dr. J. F. Thompson contrasted the modes of living at present, with those of past years. He agreed with the other speakers, that the teeth of the negro population had greatly deteriorated. A few years ago the calls for extracting teeth and performing other operations for them, were few compared with now. He thought the Scotch nation owed in part their good teeth to their oat meal diet.

Dr. Michard, of Richmond, called attention to the fact that the teeth of mulatoes were of very inferior quality. He thought also that the teeth of farmers were deteriorating.

Dr. S. H. Henkel, of Staunton, Va., thought that a correct pathology was the groundwork of a correct system of treatment of dental diseases. We should consider the subject of climate in endeavoring to get at the true course of dental caries. Crossing the blood of different races was a direct violation of the laws of nature, and all such violations were sure to be punished. Decay was the inevitable result of a violation of any of nature's laws. The iniquity of the parents was visited on the children. As to the cause of irregularity of development of teeth, he confessed himself sadly puzzled to account for some of the cases that come under his notice; no theory so far as he had seen, satisfactorily accounted for these deviations from a normal type. He gave a case in point, in which great irregularity was seen in the arrangement of the teeth of a young patient of his, the teeth of whose ancestry for three generations back were perfect in form and arrangement. He thought a necessity was upon us to investigate this subject, and give it our best efforts.

Dr. W. L. Burton, of Richmond, enquired if benefit might not result from the internal use of lime matter in cases of pregnancy, accompanied with softening of the teeth. He was in hopes that statistics from the valley of Virginia and other lime stone regions would throw light on this obscure subject.

The President, Dr. Thackston, was gratified at the dis cussion and thought those suggestions and expressions of opinions, would stimulate to further research in this direction.

He gave a synopsis of the treatment of a case of alveolar abscess, involving extraction and replacement, which possessed he thought sufficient interest to deserve recital.

Dr. Henkle reported two successful cases of a somewhat similar nature. He thought that this operation had been removed from the list of impossibilities and even of improbabilities, to that of reasonable certainty. One of the cases in which he had removed the lower left bicuspid, and replaced after treatment, was operated on three and a half years ago and was still a success. The other was a lower molar, and was, though not of so long standing, still doing well. Age of the first patient 18 years.

Prof. Hodgkin. This is a subject of absorbing interest to the dentist, and I am glad that it is being discussed. Still I must dissent in part from the views expressed, or at least I do not fully endorse all that has been said. No one cause was in operation to produce the grave results that was seen so manifest in the loss of the teeth of the present generation, but the roots of this trouble are deep, far reaching and multitudinous. There are so many factors entering into this calculation; causes remote and seemingly trivial are associated with those that are plain and obvious, to bring about the pathological conditions we see daily.

My friend Dr. Thompson, has quoted the authority of Dr. John Allen, a man whose opinion is certainly entitled to great weight, as saying that the bolting of the mineral elements from our staff of life, was the cause of the deterioration of the teeth of this generation. But in the face of this I put the opposite fact that the Irish race, who subsist mainly on the potato, an article of food containing little else save starch, have good teeth. We must seek elsewhere in part for the cause of this evil. May we not find much in the artificial life of the people to bring about the results in question? Intra-uterine life is the time when the causes that produce bad teeth are most active. Children are begotten in debility, are born of feeble and anemic mothers, are raised like hot-house plants with nothing natural in their surroundings and it is no wonder that their teeth share in their general feebleness of structure, which their bodies may outgrow, but which their teeth cannot. I cannot make up my mind to accept some of the theories broached, of supplying the system with such food as the teeth require. I did not believe and cannot until further evidence is produced, that the administration of lime salts can arrest caries. Teeth are not attacked from within, but from without, and no one has ever proved that they are robbed of their lime salts by its abstraction from the dentine through the agency of the pulp. It is a very pretty theory that we can feed the teeth from within, (some seem to have an idea that the enamel would or could take up lime salts from without,) but the facts stare us in the face that there are people who live on food almost wholly carbonaceous, with well developed, good solid teeth, (the Esquimaux, for example.) The solution of the difficulty lies far back of this. There is an abundance of lime salts in the ordinary diet of any child to form all the teeth it will have. Animal food is rich in phosphates, so are the legumens, beans, peas, &c. The fact that the Scotch had fine teeth could not be due solely to their living on oat meal, which, though a food rich in phosphates is yet not so rich as wheat meal.

I have under close observation two children, the parents of which having teeth of feeble structure themselves and are in feeble health, hoped to find in this doctrine of Dr. Allen, the means of constructing good teeth for their offspring.

The attention was first called to the subject when the first born child was only a few months old, and I suppose that no more faithful bran-eaters ever ate Graham mush. The mother was nursing her infant and she subsisted largely on bread made of unbolted wheat flour. So soon as the babe was of age to take other food than its mother's milk, it was fed upon the same diet, and it was faithfully kept up. In the course of time, the temporary teeth were erupted, only to show themselves soft, chalky and easily destroyed. Meantime the mother became again pregnant, and still firm in the resolution to give the theory a faithful trial, she during this term still used the unbolted flour, which had at least the effect to obviate the habitual constipation with which most pregnant females suffer. The same care in nursing the second child was observed, and the same diet used from the time it first took other food than milk, viz: unbolted wheat meal. The first child is now nearly five years of age, with teeth so soft and frail as to render it a matter of exceeding doubt if any of them will be lost in the natural way, in spite of the utmost care which its father, a dentist, has been able to give them. The other child now two and a half years old, has teeth but little if any better—soft, chalky, already extensively attacked by caries.

It is not one swallow, however, that makes a summer. I have seen a child of five years, whose teeth, developed under circumstances similar to those just related, are of most excellent quality. It should be stated that this last mentioned child, with teeth of exceptionable hardness and perfection of form, was raised not only on bran bread, but if the statement of his parents was to be accepted as evidence, had excluded from his diet sugar, salt, meats of all kinds, condiments, tea, coffee, &c. Whether this exclusion influenced the development of his teeth or not I cannot say.

A theory has lately been broached that the defective teeth of children is owing to the meagerness of their diet; that instead of being sent supperless to bed, or with only a slight meal at that hour, that they should be well fed, on the assumption that digestion goes on more perfectly during sleep. The ground for this conclusion being that experiments on dogs fed and allowed to sleep, and dogs fed and hunted vigorously, proved that the quiet animals digested their food perfectly, while in those that were actively exercised the food was not digested. A comparison, however, between the children who are allowed to stuff themselves at night, and those whose diet was restricted, would show I think no good reason for allowing the stuffing practice to prevail.

An informal discussion here arose between members, as to the cause of sensitiveness in dentine, some attributing to the contents of the dentinal tubuli nerve functions, and considering them as true prolongations of the pulp.

Prof. Hodgkin. I am not prepared to accept the theory that the contents of the tubuli are nerve tissue. That they do convey sensation is a fact, but that they are ramifications of the pulp does, it seems to me, contradict the testimony of my eyes. Break a tooth open and what do you see? the pulp not closely adherent to the walls, as would surely be the case if thousands on thousands of fibres passed out into the dentine, but it is so loosely attached that it literally falls out, as the kernel of a nut falls out when the shell is broken.

Dr. Thackston. I must take issue with Prof. Hodgkin in this matter. I think the researches of Tomes and others conclusively prove that the contents of the tubules are continuous with the pulp, and have even been seen repeatedly, stretching out, partly pulled out of their respective lodgments, under the microscope. That the pulp is found as Prof. Hodgkin asserts is true, but he must remember that he is examining an extracted tooth, and the force used in removing it and severing the pulp at the foramen, might eat the pulp from the walls, and so produce the result seen, which might not be normal.

Dr. J. Hall Moore. I would like to ask Prof. Hodgkin if he does not find it difficult to remove a pulp not devitalized from the pulp chamber, and is not the fact that it adheres closely to the walls, requiring to be torn out in fragments, prove that it has a closer connection than he is willing to admit? I grant that pulps for some little time devitalized do come away easily, but those that are forcibly extirpated seem to cling with great tenacity to the walls of the pulp chamber, showing an attachment of some sort.

Prof. Hodgkin. The pulp is rather easily torn, and the aperture through which we obtain access to it is small, and the instruments not such as readily grasp it. These seem to me sufficient causes for the results spoken of by Dr. Moore, and so far as Mr. Tomes is concerned, with all due respect for such high authority, I must say, that I prefer my eyes and their evidence to his. I am aware that great reliance is placed on the evidence of the microscope, and the conclusions that are drawn from observations with that instrument are usually deemed infallible. But sir, when the microscopists cannot agree among themselves as to the form of blood discs, when they disagree as to the results of so many of their researches, what am I to infer—naturally that the instrument is not an infallible test of all things at least. I recollect a discussion that was going on in a late number of the *Popular Science Monthly*, in which it was shown conclusively that the very test relied on by the microscopists as evidence of certain powers of their certain instruments—a test accepted by all as fixed and conclusive—was no test at all, and that the best observers saw the same things in totally different shapes and forms.

Dr. Henkel. Man is highest production of his Creator, and we can neither violate his laws with impunity or set them aside. That we are constantly violating these laws is palpable, and it is no wonder that we suffer the penalty.

Dr. J. Hall Moore. I desire to call the attention of this Association to the unfavorable results obtained at my hands from the use of salicylic acid. I wish to warn my professional brethren not to trust this new agent, as it is in my opinion unreliable. In the treatment of teeth with dead pulps, I have not found it to yield the good results claimed for it, and I shall hereafter depend on carbolic acid, creosote, or nitrate of silver. I think salicylic acid a very efficient deodorizer and nothing more.

After further discussion the Association adjourned.

SECOND DAY.—*Afternoon Session.*

The subject of Dental Therapeutics was discussed. Dr. Henkle from the committee on this subject made a report.

Dr. W. L. Burton, approved of carbolic acid and the ordinary treatment of alveolar abscess. He had used salicylic acid, but could not report with what success as yet, as the treatment was recent. He noticed that it acted on the mucous membrane much as an escharotic.

Dr. Cowardin has found creosote and iodine superior to carbolic acid. He used iodine on the gum and in the root in three cases of abscess with success. He had been uniformly successful in his treatment of these cases.

Dr. Burton thought that in those cases where there was no fistulous opening through the gum, that creosote occasionally gave trouble. He had found the discharge of pus increased by its use.

Dr. Hunt spoke of injury to the tooth and pulp from the presence of amalgam. He had noticed that the dentine around and under an amalgam filling, was often blackened and hardened. The same result was seen under a tin filling. The sensitiveness of the dentine was much reduced. Now might we not here find a clue to a remedy for sensitiveness of dentine? What is this agent that hardens and deadens the dentine? is it the oxide of tin? This is a subject worthy of our investigation, and he hoped members of the Association would act on the hint he had given. He considered creosote invaluable, and iodine only second to it as agents for the cure of abscess.

Dr. Chewing thought tin a better filling than amalgam, and hoped to see it used more extensively.

Dr. Hunt wished to set himself right on the record. He did not wish the impression to be produced that he thought teeth were habitually killed by the use of amalgam. It (amalgam) was a good thing. Gold itself sometimes causes the death of the pulp. He had had sad experience with arsenic, and would warn members from using it for the purpose of obtunding sensitive dentine. He found he had killed in his day lots of teeth with it. There was a plain path right through the tubuli to the pulp, and it would certainly pass through.

Dr. Henkle confirmed the views of Dr. Hunt, on the subject of the use of arsenic

Dr. Burton spoke of the use of Guillois' cement as an agent for obtunding sensitive dentine, and also for capping nerves. He had great success with it.

Dr. Hunt asked if Guillois' cement was an oxychloride of zinc? He thought there was a difference between it and the ordinary os-artificial preparations.

Dr. Burton said that he was sure that the two were dissimilar. He had seen that chloride of zinc caused much more pain than the other. He spoke of a case in which the pulp was removed from a pulp chamber, but was alive in the roots of an upper molar, and he left it in these roots as it was healthy, and capped over.

Prof. Hodgkin expressed surprise that at this day any one thought it necessary to call attention to the injurious action of arsenic.

Dr. Thackston called attention to an article once popular, then disused and once again revised—the oil of cloves. He thought it worth a fair trial.

The subject of Dental Pathology was then passed.

The report of the committee on Physiology was called for. Dr. Burton, the chairman, had no report. Subject passed.

Histology and Microscopy called. Dr. J. Hall Moore had no report. He had no microscope, and could not make investigations. Adjourned.

TO BE CONTINUED.

ARTICLE II.

On the Preservation of the Deciduous Teeth.

BY N. MARSHALL BURKHOLDER, D. D. S., HARRISONBURG, VA.

Read before the Virginia Dental Association.

The first ten years of the child is too apt to be a period of neglect, as it respects the teeth. The fact that the first teeth are soon lost, or rather must soon give place to others accounts, I suppose, in some measure for the little attention they have commonly received from dental practitioners and from parents as well.

It is very easy, however, to get into the habit of crediting the general public with very much more knowledge on these subjects than they actually possess; and to forget that a far more important reason of the neglect of the teeth of children is found in a want of acquaintance with those facts of physiology which proclaim the importance of their preservation.

Very many parents, in my experience, possess only enough acquaintance with this general subject to know that their children "*will get other teeth*" when the milk teeth are gone. They have no idea of a regular period for their appearance, which will not be hastened, but rather retarded, by the untimely loss of the first teeth. They have never given any thought to a consideration of the conditions necessary to the formation of the permanent teeth, or to perfect nutrition and vigorous growth. They have scarcely noticed an increased number in the second set. How common the dialogue in every dental office with regard to the first permanent molar: Parent referring to child—"He will get another tooth there." Dentist—"No; that is one of the second set." Parent—"Why he has never lost that tooth yet."

The great masses of the people know nothing of these things. It is not because they are lacking in intelligence that they suffer so much from carelessness and neglect, but, because they are so busy in the pursuits of life that they cannot spare time, they imagine to read and study the laws of hygiene and physiology. They have all the indifference of our grandfathers, without however, having our grandfathers teeth. And what is more, they are not to be expected to inform themselves on these subjects until their importance is pointed out to them, and their attention is in some degree awakened.

There has undoubtedly been great neglect on the part of the dental profession, as a whole, in this very important sphere of our labors. The attention of the people in many communities has scarcely ever been called to the importance of the preservation of the deciduous teeth; to the importance of a careful observation of the mouth during the entire period of the eruption of the permanent teeth, and of the timely correction of incipient irregularity.

It is to this matter I wish particularly to direct the attention of our Association. I regret that I cannot reach the ear of every practitioner in Virginia. For it often happens that the members of our Association, least of all, need these exhortations. They are commonly alive to their duties, and very often far in advance of the speaker who is urging them forward. But let me say, if the dental profession would discharge its obligations in the highest sense, it must instruct as well as practice. We must be teachers as well as surgeons. I fear exceedingly that, as a people, we are neglecting the teeth of our children, and I believe that dental surgery will have to look and labor more in this direction in the future, than it has ever done in the past.

It is gratifying, however, to note the fact that so many at this day are turning their attention to this class of teeth. The inquiry is arising in many minds, "Is there not something more to be done here, and how shall we reach the children." It is beginning to be perceived that all truth is correlated; that the beginning of things are usually the most important. No subject, however trivial or slight its relation to other subjects may at first blush appear to be, is to be despised by him who would attain those truths which in anywise concern the happiness of man.

The period of childhood is so much characterized by bloom, and promise, and rapid growth, that it is hard to think of a necessity of guarding against decay. Besides it has never been customary to give any attention to their teeth. "Whoever heard of such a thing," occurs to every one. But the ruling fact of a greatly inferior structure of the teeth of children of to-day, as compared with their parents or grandparents, stares us in the face, and necessitates that care and attention which our ancestors could do without.

Not very long ago it was exceedingly rare to find a dentist who was much exercised about the teeth of children. But may we not reasonably hope we are fast nearing the time when the dental profession, as a whole, shall enter this wide field; and when the children now the subjects of universal mighty effort in the domains of the heart and head, will have enlisted in their behalf those efforts which are calculated to promote their physical well being and therefore their comfort and happiness.

I lay down the proposition, which will commend itself to every one, that if nature intended the deciduous teeth to be a substitute for the teeth which should be permanent, until the system is able to bring forth these permanent teeth, then it is our duty to preserve them as long as they are wanted, according to this design of nature. And I venture to assert on the principle that no design of nature, or function of an organ can be thwarted or destroyed without influences more or less hurtful to other organs, and to the general system; that the invasion by diseases of these organs (the first teeth) and the premature loss of their function is to the no slight detriment of the system. The principal function of the teeth is mastication. The preparation of the food for digestion—for absorption and assimilation lies at the very beginning of the process of healthy growth, or rather of the conditions necessary thereto. We perceive the necessity of requiring that the infant taken from its mother's breast, as it begins an independent existence, should be fed on food which requires no teeth for its preparation for the stomach. Food which has been elaborated through the operation of the teeth of another has hitherto been its support. As the teeth are erupted its ability to partake of more solid food is correspondingly increased. Before its second year, however, the child has no business at the table with the rest of the family. About the end of the third year it may, if taught by considerate parents to masticate well, subsist upon any solid food, the deciduous, or temporary, the first or milk teeth as they are variously termed, being now usually all in place.

We are now entering upon a critical period in the history of the child in respect of its physical development. This is peculiarly the formative period. The most rapid growth of brain occurs between the ages of three and ten. I believe it to be true in a physical as in a moral sense, "Give me the child at three years old, and when he has lost his milk teeth you may make what you please of him." It is the period of greatest impressibility. The slightest force gives new direction to the currents of life and character; the slightest impediment may hinder and clog its delicate mechanism. Inferior mastication here makes bad digestion, and this impairs nutrition, and nervous disorder ensues with lowered vitality. Such a state childhood's innumerable ailments find most readily; and here disease reveals with least opposition. If, however, all the offices of the various organs continue to be healthily performed, if there be exercised a judicious care to favor a uniform and harmonious development of the physical and of the nervous systems, counteracting here and promoting there such prominent inherited tendencies as are observed, we may expect a well developed, well balanced organization, health vigor and happiness.

I frankly admit that I have here introduced a saving of great potency. I believe that that acute observer, Prof.

Kingsley, (witness his September article "*American Journal of Dental Science,*") has pointed out to us some important facts in this connection, and further that he has discovered to us the method of approach to others. It has for many years been the declared opinion of the first educators, and of the first medical men, that the intellect of the child should not be pushed; that the physical system should have fair play between the fifth and tenth years. In other words, that a solid substructure of body should be first provided, and on this erected the brain.

We have but to look about us with the most casual glance to perceive that the tendency to excessive nervous development is on the increase. Why, sir, there is such a thing as attaching too much importance to education; and this is one of the evils of it. In the sphere of religious effort intellectual endowments sometimes come to be considered before spiritual endowments. "Mind over matter" has been so persistently hung up in letters of green on brilliant commencement occasions, that many a young man has half wished himself out of the body, and has thought it matter for praise that he has actually reduced his body to the lowest minimum.

This atmosphere has been so much breathed that it is to be feared "mind" has sometimes come to appear to be "over matter," like the figure of liberty on our Virginia coat of arms is over the tyrant who lies crushed and despised at her feet. Everything has its limits; it will not do to disturb the natural relation of things. Mind is over matter, but still connected with it. And our bodies are not to be lightly esteemed They evince the masterly workmanship of a Master's hand. They bear the stamp of divinity. And it becomes our duty, our first duty as between the physical and the intellectual, to preserve this body and each and every of its members. Especially is it seen our first duty when we consider that through the medium of the body the mind manifests itself.

Except under infatuation the human mind always acts upon this conclusion. "Self preservation is the first law of nature." But the spirit of infatuation is abroad. Throughout the entire frame-work of modern society, in all its channels, and intricate underrents, everything is on a *strain.*

I am reminded in this connection of the humorous and original Prof. Thos. E. Bond, who, in speaking about what he termed the "emasculate practice of the times," in displacing the lancet, and in its reliance upon that great class of remedies known as stimulants, remarked that the present practice seemed to be based upon the theory that "*Life is a forced state, and whiskey a forcer.*"

An undue development of the brain and nervous system occupies an important place in relation to irregularity of the teeth, imperfect tooth structure, and to the deterioration of those qualities of the human frame which capacitate man for endurance. That relation is entitled to be declared one of the recognized facts of dental science of to-day. It affects all children in precise correspondence, (other things equal,) with their trangression of the laws of normal development, in acceding to the wrong demands of civilization, the natural tendency of which is in laboring for the development of the mind, not to give enough thought to the highest development of the body.

Premature mental exertion dwarfs the physical system by robbing it of blood and of nervous force, thus impairing the digestive and nutritive powers which have to do with growth. But *mastication* being a condition upon which digestion depends, if it be wanting or imperfect, it will, by so much, inevitably tell upon the digestive capacity, and in the general results of nutrition and of organic structure, the brain itself included. In this way the digestive apparatus is overworked; in the former it is robbed of its power. In both, its powers are diminished. In the one case you overstrain the brain, which draws upon the entire system for its support; in the other you overstrain the stomach, producing general relaxation or diminution of vigorous tone.

These are sober facts which should be read and pondered by parents everywhere. It is no less our duty to bequeath to our posterity a vigorous body than a vigorous mind. In truth the highest effective capacity of mind, other things equal, must ever be linked to the highest physical development.

Now if we consider the earnest demand for vital power in the growing child, coming from very rapidly forming tissue, and organ, we begin to perceive the serious nature of the least unnatural action or derangement of the function of digestion and other conditions of supply. And then with this, taking into view the tendency to excessive nervous development, the results of which,—an abatement of the vigor of the nutritive forces, and a lowering of the forming constitution—are increased and intensified in force by inheritance from generation to generation, it seems to me it ought to be considered all-important to preserve in perfect order the masticatory organs; to preserve always all the conditions directly concerned in the up-building of the physical system, but especially when an influence so potent is operating to hinder and weaken and drain away its powers.

The deciduous teeth form a most necessary part of nature's laboratory in a most critical period of her labors. They should receive the attention of parent and dentist, until one after another, they are displaced by their successors. The very gradual method of natural displacement which makes the period of their disappearance scarcely felt as it regards the power of mastication should teach us that nature foresaw she could not spare them. It ought to be regarded quite as serious a matter to lose a deciduous tooth as a permanent tooth. It ought to be held an important matter, not to be neglected, to have a child continuously refusing to chew on one side of the mouth on account of the presence of a diseased and sensitive tooth. Who has not seen it? Permanent injury to all on that side ensues. Apart from the suffering and its general depressing effects, affected glands, vitiated saliva, imperfect digestion, more or less, make up a sad and what is worse, a useless picture. Or if the teeth are lost, by so much precisely as the power of mastication is reduced and its proper performance hindered, will the process of nutrition and healthy, vigorous, perfect structural formation be impaired as the ultimate result.

Who is prepared to demonstrate it a small matter to have an inferior digestion during this period of peculiarly rapid development, unattended though it be by any disorders visible save those affections of the blood and skin so common to the young.

During this period of rapid growth of bone, and muscle and nerve, the formation of the permanent teeth is also steadily progressing. The forming teeth seem to possess a peculiar sensitiveness in the presence of constitutional disorder. Take, for instance, the care of atrophy of the teeth. Where in other structures of the body are the corresponding marks of those constitutional disturbances which produce it. The teeth seem to be developed on the remotest limits of vital flow, and the delicate threads and silken fibres of their existence are made to tremble and pale at the slightest ebb.

If good mastication and good digestion be important at anytime,—if the conditions necessary to the most perfect nutrition and most healthy growth are important at any time of life, are they not especially so during this period? "The child is father to the man." What if nature, kind mother, has furnished the child these teeth with which it may, as it were, work out for itself others whose structure shall be so much more enduring as the conditions under which they are formed are superior to the conditions under which the first were formed. How lamentable the reflection that in so many instances these conditions are permitted to be so little superior to the first. The buoyant forces of nature, as they go on to fill up the stature and complete the structures of the body are not easily overcome; but the secret and destructive influences they experience are not the less real because they are unseen.

The presence of the deciduous teeth and the proper performance of mastication has its natural relation to the healthy formation of the permanent teeth, and we are bound to treat the deciduous teeth with this fact in view.

Considerations like these should require nothing supplemental to discover to us our duty. It should be added, however, that the preservation of these teeth has an important bearing upon the natural and orderly placing of the permanent teeth. Their premature loss in certain contingencies, occurring in almost every mouth, is followed by *irregularity* and *crowding* of the permanent teeth. Every parent should seek to avert this calamity. For a crowded condition of the teeth is one of the great predisposing causes of decay.

Not the least of the benefits to be derived from the preservation of the deciduous teeth is the habit of cleansing the teeth with brush and quill daily. Perhaps the most lamentable want of our times, in connection with this whole subject, is *the habit of cleansing the teeth.* Habit, to be firmly fixed, must be begun early. *It has come to this, that every wise mother must make it a part of her duty to see to it that her children are taught to use the Brush as soon as they are taught to wash their faces.*

The habit of giving attention to the teeth thus early begun, coupled with the necessary instruction and advice, serves not only to fix impressions of their frailty, but also of their value. And thus a strong sense of duty, the safe guard against neglect, is early attained and never lost. The brush should be used at least morning and evening,—deferred in the evening until just before going to bed. The teeth are thereby freed from whatever may have been taken into the mouth after supper, fruits, etc., and acid secretions. No money pays better than that put into tooth brushes. But the brush must be aided by the quill. There are points in perhaps every mouth, where solutions of food, or other acidulated matters cannot be disturbed with the brush. The quill breaks up these nests on proximal surfaces. The use of brush and quill is not a burden; it becomes a matter of comfort, and one does not feel well without them.

I have a little boy, aged 9, who has been using the brush daily since he was four years old. Two of his first teeth have been filled, and none of them have been lost except in the natural process of displacement.

There is too much indifference to the wants of children because they are children. Children are almost universally allowed to neglect their teeth because of a lack of decision in parents, in enforcing the regular use of the brush. And in many cases the dread of a small expense,—small in the majority of cases where the habit of cleansing is observed, is the obstacle in the way of their preservation.

By urging the habit of cleansing, by frequent examinations, by judicious separations, and by fillings, it may be with the cheaper materials, with very short sittings, we must preserve the children's teeth. It requires patience, gentleness, and strict truthfulness to treat with children. And what is more, the decided support of the parent.

As the people are made acquainted with these particulars they become more careful of their teeth, and of the teeth of their children. Our profession should endeavor to gather up the truth on these subjects, and disseminate it. This, if I understand it, is one of the benefits resulting from Associations like this. There is great sale for small, judiciously prepared, popular treatises on these subjects. Education is the one idea of the day. While the popular mind is being drawn out in other departments of useful knowledge we must provide the needed information in this important field.

For forty years our profession has labored with unabating effort to convince the world of the importance of the teeth, and of the necessity of educated and skilled men to assist the people in preserving them. You have successfully demonstrated it to men of science and to the masses alike. You have humbly, quietly, and yet resolutely, and by the effective aid of many of the medical profession, demonstrated the importance and the possibility of preserving the teeth. You have lifted it from a position of vague uncertainty and non-attention in which it was regarded, and have shown that the teeth stand closely and influentially related to the human system.

But we have work yet before us. In the heat of the contest there seemed to be little time to attend to the children. We thought little about them, and did less for them. The great public see now the importance of preserving *their* teeth. *But they do not yet generally understand that we have a mission to their children.* The time has come when we must advocate the cause of the children.

It is the high duty of the dental and medical professions alike to endeavor to acquaint men with the great fundamental laws of health and of disease, and with the facts and conditions upon which disease in general depends.

The diffusion of much knowledge tends not only to diminish the accidents of disease, but, through an intelligent apprehension of disease once begun, secures more apparently the needed professional assistance, provides against relapses and thus multiplies the success, and enhances the character and dignity of the healing art.

ARTICLE III.

Are Irregularities of the Teeth Ever Caused by Tongue and Thumb Sucking?

BY JAS. F. THOMPSON, D. D. S., M. D.

This is a question I wish to present before the Virginia State Dental Association as a voluntary essay, and hope it will bring out considerable discussion. And since dental associations are organized for the purpose of discussing questions pertaining to the oral cavity, I therefore present this as a subject of itself, a very peculiar one, never having heard it or seen it discussed before by any dental association.

In answer to the question in the premises that I have propounded, I will say—yes; the most serious results are in a very large majority of cases produced by the causes I have named in the title. How often do we hear the old nurses of the little ones, whose existence in this world may be numbered by only a few days or a few weeks, say, "oh! let the little thing learn how to suck its thumb, it will make it so good." And then and there will commence a tuition that will result in what?—a deformity of the mouth and irregularity of the teeth that will cause many regrets in after life.

What is the normal type of the human jaw? It is round and parbolic. In the opposite of normal we find the jaw eliptical, contracted, disproportionately large and angular. This tpye we are apt to find in the case of those who have been addicted to the habit in question.

In the type of irregularity in this case, we find an undue prominence in the anterior incisive aspect of the superior maxillary, with much projection of the teeth, while the lower jaw in these cases is found so far as relates to its anterior aspects the reverse of the upper, being flattened while the teeth incline into the mouth, this being caused by the thumb or knuckles being pressed against the lower teeth, while the inside of the upper part of the thumb is brought against the back of the upper teeth, acting the part of a double lever. This mechanical distortion of the jaw causing irregularities of the teeth, has been one which has occupied my attention for several years past. I have observed it so closely that I have been able in almost every case to detect it.

I will cite a case in practice of a lady patient, aged 25 or 30, who came to me to have a partial dentine composing the upper front teeth inserted. Upon examining her mouth, and finding undue prominence of the anterior incisive portion of the superior maxillary, with the teeth of the lower jaw somewhat flattened in, I immediately asked her the question whether or not she was ever addicted to the habit of sucking her thumb when young. Without any hesitancy she told me she did so until she was ten or twelve years old, and when I pointed out to her how the bad formation of her mouth was brought about, she immediately commenced to censure those who had the care of her in her early childhood. Were it not for this deformity, she would be very good looking.

I have astonished mothers, who have come to me with their little six or seven year old ones, upon examining their mouths, by asking the question, if they had not been addicted to the habit of sucking their thumbs; andI invariably received an answer in the affirmative, and they would ask why should ask the question.

I would then point out my reason by calling their attention to the deformity, and irregularity of the teeth. They would be utterly surprised at the result, and would own that they had encouraged the habit in order to make them good. It is truly unfortunate that parents should be ignorant of the bad results that are brought about by this habit.

Sucking the tongue is another form which is very difficult to detect, and at the same time, the most serious of all. I believe it is a habit that is continued for a long time, and been run into adult age, and up to middle life we find some people constantly sucking their tongues when they get quiet, or on going to sleep or thinking about something. The tongue is then pressed like a stick against the upper jaw, and there constant pressure is made, so that persons who have this habit, have the jaw actually pushed out, not as it is with the thumb, but the whole arch pushed out.

I regret very much that I did not make plaster casts of the cases I have seen, which would show how exactly the thumb fits into the palate arch, and pushing the upper jaw out, and how the lower jaw seems to have been pushed in by the weight of the hand. These habits that I have spoken of, are apt to make some children weak, thin and pale, brought about no doubt by a constant flow of saliva, which is excited in the mouth by the act of sucking, causing a drain upon the system which is thrown into the stomach, thereby impairing the digestive apparatus as well as the appetite.

I have no doubt there are many cases where a dentist is at work trying to correct the evil of irregularities, while the patient is at work constantly producing it by the habits in question. Would it not be well for us as professional men, when we come across cases in our young patients like those I have enumerated, to investigate them through their parents, or those who have charge of them, and teach them how much injury is brought upon the little ones by the pernicious habit of sucking their thumbs? In fact it is a duty we owe to our patients and patrons, to tell them of these results so they can tell others.

In conclusion, I think I have beyond a question of doubt, shown how irregularities and deformities are produced by the habit of tongue and thumb sucking, and I do not know anything else which children do with their mouths that can deform them, except sucking.

ARTICLE IV.

American Dental Association.

The next meeting of the AMERICAN DENTAL ASSOCIATION will be held in Philadelphia, Tuesday, August 1st, 1876. It is the desire of the officers and members of the Association that the State and Local Dental Societies and Dental Colleges in the Union, North, South, East and West, should be fully represented at that meeting, the Centennial year of national existence. The occasion is one not only calculated to bring about that united brotherhood which we desire as fellow countrymen, but in addition, as professional men, the representative character of the organization makes it the most powerful and effective means for the elevation of our profession in advancing the cause of education.

Speaking not for any particular section, or any single interest, but for the profession at large, its recommendations assume a force that no local organization can possibly command. At the time of its inception in 1859, there were present at the meeting at Niagara, representations from ten local organizations.

In the brief period of sixteen years, that has elapsed since that the number of state and local societies that have been formed, and sending delegates to the Association has been increased seven fold. There are, however, several states in which dental societies have not yet been established. It is to be hoped that the profession there, will at once move in this matter, and organize State and local societies, and send delegates to this meeting. The representative basis of the Association demand that none other than those who come with credentials as delegates from State and local societies, and dental colleges, can be received as members. This however, does not debar any respectable practitioner, as is only necessary to unite with a local organization to be sent as a delegate.

The Centennial Exposition taking place in 1876, is calculated to attract among others from abroad, a number of our professional brethren; and it is to be hoped that they will make arrangements to visit this country at the time of the meeting of the American Dental Association. If they should do so in sufficient numbers, and participate in the deliberations on that occasion, the Association would assume the character of an International Congress of the profession, a consummation most earnestly to be desired. Invitations have been extended to the profession in foreign countries, to unite with us on that occasion. While we should be most happy to receive delegates from foreign dental societies, reputable foreign practitioners who may present themselves without the credentials of a dental society, would be gladly welcomed, and exception of the organic law would be made in their favor.

J. H. McQuillen, *Corresponding Secretary.*

ARTICLE V.

To Editor of American Journal of Dental Science:

Dear Sir—

Will you kindly give place to the following announcement in the February number of the "Journal of Dental Science," and oblige

Yours very truly,
Geo. T. Moffatt.

At the December monthly meeting of the "*American Academy of Dental Science*," Dr. D. M. Parker, member of the Centennial Board of State Managers, and President of the Academy, in the chair, it was voted unanimously that the Academy shall endeavor to present in some suitable manner the claims of Dentistry, or more properly, of "Oral Science," at the coming "Centennial" at Philadelphia.

A committee of ten was appointed to make the necessary arrangements, and they have held weekly meetings from that time to the present. To this committee have been added as "advisory members," representative men throughout the country.

In order to still further aid the committee in this undertaking, they now request the co-operation of all members of the profession who may be interested in the movement, and would solicit any information pertinent to the subject that any one may have in their power to give. They particularly desire *facts* relative to the *early history* of the profession in this country; as to individual practitioners and the efforts that have been made at securing a suitable and thorough education in this *specialty of medicine.*

All information bearing upon the above points, will be gratefully received by the committee, and may be sent to

Geo. T. Moffatt, M. D.,
Secretary of the Committee,
No. 1 Hotel Boylsten,
Boston, Mass.

SELECTED ARTICLES.

ARTICLE VI.

OFFICE OF THE CELLULOID MANUFACTURING CO,
Newark, N. J., December 28th, 1875.

S. S. WHITE, ESQ., Philadelphia.

DEAR SIR.—The inclosed letter of Mr. Hamilton, addressed to me, explaining the case of Goodyear Dental Vulcanite Company and Josiah Bacon against Flagg, will give you the situation better than if I undertook the explanation myself. You are probably aware that the movement of Josiah Bacon in Baltimore last week, in which an attempt was again made to introduce the subject of Celluloid in connection with the vulcanite rubber dental plates, and which they were obliged to withdraw as soon as we appeared by counsel, is another evidence of their attempts, by all underhanded means, to steal a march upon us, instead of meeting the issue square upon its merits.

Yours truly,
MARSHALL LEFFERTS, *President.*

New York, December 23d, 1875.

MARSHALL LEFFERTS, ESQ., *President of the Celluloid Manufacturing Company.*

DEAR SIR—The Goodyear Dental Vulcanite Company and Josiah Bacon have this day voluntarily withdrawn the suit against Dr. Eben M. Flagg, which they brought, you will remember, for the purpose of enjoining Dr. Flagg from the use of Celluloid in making dental plates, and have consented to pay Dr. Flagg's costs rather than pursue the case any further.

In view of the long-continued threats by Mr. Bacon and his Company to prosecute and punish dentists daring to use Celluloid for dental plates, it is proper that you should be informed of the circumstances under which this suit was begun and ended. It was begun under the most favorable circumstances for the Goodyear Company and Mr. Bacon. They had several years in which to collect their evidence and to prepare for trial. They chose their own court and their own place of trial, their own defendant and their own time. They chose to begin the suit in midsummer, when lawyers are absent from the city on their vacation. They could not have a better case against any one than they had against Dr. Flagg, as it was admitted beyond question and in the clearest manner that he had for over a year used Celluloid in making dental plates, and had infringed the Cummings patent, if the use of Celluloid constituted any infringement.

If the complainants sincerely desired a test case this surely was a favorable one for them. The Celluloid Company were glad of this opportunity to finally put an end to the threats of the Goodyear Company and Mr. Bacon.

The complainants at the commencement of the suit made a motion before Judge Blatchford, in New York, for a preliminary injunction, using on that motion the evidence they had so long been accumulating,—using also the affidavits of Josiah Bacon; of G. H. P. Flagg, a dentist of Boston; of Dubois B. Parmlee, a chemist; of Henry B. Renwick, an expert; and of Henry I. Fisk.

They also referred to the printed record in the Smith case and to the previous decisions in their favor, and they presented to the court, as exhibits for examination, metal dental plates, vulcanite dental plates, and Celluloid dental plates. In short, it seems that the complainants used on that motion everything of fact or of law that could, in the opinion of their experienced counsel, aid them in any way.

The motion was argued by Messrs. E. N. Dickerson and B. F. Lee, for the complainants, and by Judge William D.

Shipman, Clarence A. Seward, and E. Luther Hamilton, for Dr. Flagg. Elaborate printed briefs were submitted to Judge Blatchford, and while he had the matter under consideration, Dr. Flagg, who was anxious to bring the case on for a speedy trial, applied to the Court and obtained an order to compel the complainants to put in their proof by a certain fixed day.

The time fixed by that order expired this afternoon.

On December 7th, Judge Blatchford rendered his decision denying their motion for a preliminary injunction, and filed the following opinion in the case:

U. S. CIRCUIT COURT, SOUTHERN DISTRICT OF N. Y.

THE GOODYEAR DENTAL VULCANITE CO., AND OTHERS *vs.* EBEN M. FLAGG.

BLATCHFORD, J.:

"I do not find that any decision has been made in regard to the plaintiff's patent which gives to it such a construction as necessarily includes the process and substance used by the defendant. In the Gardner case the defendant did not compound India-rubber with sulphur, but he compounded India rubber with iodine, and he employed heat to harden the rubber. (*Goodyear Dental Vulcanite Company* vs. *Gardner*, 4 *Fisher's Patent Cases*, 224, 231.)

"In the Smith case the view of the Court was that the material to be used under the plaintiff's patent in carrying out the invention patented was to be India rubber, 'and the compounds commonly employed therewith reduced to a soft plastic condition, capable of vulcanization and subsequently vulcanized.' (*Goodyear Dental Vulcanite Company* vs. *Smith*, 5 *Official Gazette of Patent Office*, 585.)

"It appears from the description of the process used by the defendant in this suit, that he does not use India-rubber or any substance capable of vulcanization. That the substance he uses is one which is rendered plastic by heat, and is not hardened by heat. That heat is used in the process to soften the substance and render it plastic and not to harden it, and that the substance after being moulded is hardened by being cooled. It is not sufficiently clear that this process is embraced in the claim of the plaintiff's patent to warrant the granting of an injunction until one is awarded as the result of a decree for the plaintiffs on final hearing."

Instead of proceeding with the case and putting in their proofs as the Court has ordered them to do, the complainants this afternoon discontinued and dismissed the suit, and consented to pay Dr. Flagg's costs rather than to go on. The complainants have thus chosen to back out of a suit instituted by themselves and brought, as they pretended, to test the question between vulcanite and Celluloid. Judge Blatchford's decision on their motion was the shadow of the coming event, which no doubt induced them to withdraw the suit.

(Signed) Yours truly,

E. Luther Hamilton, *Solicitor for Dr. Flagg.*

—*Dental Cosmos.*

ARTICLE VII.

Osteo-Sarcoma of Lower Jaw.

REPORTED BY C. S. BRIGGS, A. M., M. D.

Gentlemen—The first patient I present to you this morning is W——, colored, aged 52, a small farmer and preacher, who comes from our county of Putnam for advice and treatment. He has always enjoyed perfect freedom from disease until within the last three years. About that time he discovered a small nodule on the inner part of the right side of the lower jaw, which was hard, immovable, not tender to the touch, nor painful. It has grown rapidly, until now, as you see, it is as large as the closed hand; it is of an oblong shape, and occupies both sides of the jaw bone. It is irregularly nodulated, elastic in some parts, in others very inelastic; not tender upon pressure. On the outside the skin is intact, and apparently but little diseased;

but on the inner side of the jaw ulceration had set in at several points, and fungus granulations have sprouted up, accompanied with an unpleasant, ichorous discharge. By passing into the central part of the tumour a small exploring needle, it encounters spiculæ of bone; so it does when passed into other parts of the mass. The patient is not much reduced, for, although spare and thin, he says he never weighed much more than he does at present. His appetite is pretty fair, and his sleep not much disturbed. His principal inconvenience is in talking—the tumour interfering very much with articulation—and he is anxious to be relieved of the diseased mass, that he may preach to his colored brethren.

From the great firmness of the mass, together with its oblong shape, and smooth or smoothly-nodulated surface, but more especially from the detection of hundreds of spiculæ of bone in its substance, I conclude that it is a case of osteo-sarcoma.

Osteo-sarcoma may form on the outer surface or in the interior of bones. In the former case it is denominated periosteal, and in the latter central.

In the case before us, the growth seems to have taken place from the outer surface of the bone. Such tumors often attain large size; most generally they are malignant, often returning after removal, and sooner or later infecting the general system.

The only alternative, in this poor man's case, gentlemen, is the removal of the portion of the lower jaw upon which the tumor is situated. The part of the jaw to be removed extends from between the incisor and the canine tooth of the right side to the right temporo-maxillary articulation.

It gives me pleasure to tell you that the great honor of being the first surgeon to attempt the amputation of the lower jaw belongs to an American, and a native of our own good State, Dr. W. H. Deaderick, of Athens; since then it has been often done by surgeons in all parts of the civilized world—not only parts of the jaw having been removed, but, in many instances, the removal of the entire jaw bone has been effected.

When the patient shall have been placed on the table, in the recumbent position, and brought fully under the influence of ether, I shall make an incision from the zygomatic process a short distance in front of the ear down to the base of the jaw, thence around to the symphisis menti, under the lower border of the bone; then pass up, vertically, to the free border of the lip. This large flap is to be rapidly dissected off from the tumor, taking care to keep as close to it as possible, without leaving any diseased structure behind. Any large vessels that may have been opened having been attended to, the mucous membrane on the inner side of the bone is to be detached, and the bone sawn through at the point selected; then, the bone having been grasped, is drawn outward, and the soft parts detached from its inner side, not forgetting that we should keep as close to the tumour as is consistent with the removal of all diseased tissues.

In separating these parts from the tumor and bone, we avoid the point and edge of the knife as much as possible, using the handle more freely.

The body and angle of the jaw having been detached from their connection, we proceed to separate the soft parts from the coronoid process, which is not always an easy task; and then, drawing the portion of jaw outward, the knife is passed close to the bone, over the condyloid process, into the articulation, which is then freely opened, and the tumor completely severed from its attachments. This last manœuvre is a most important one, from the fact of the close and intimate relations the internal maxillary artery holds to the condyle.

All hemorrhage having been checked by appropriate measures, which you understand, the flap will be brought into position, and maintained by the silver suture, which I always use. The resulting deformity will be much less than any one would imagine.

[The operation was then performed as described; the half of the jaw upon which was seated the tumor was soon exsected. Very little hemorrhage followed, because the common carotid was thoroughly compressed during the entire operation. The flap was returned to its place, and kept in situ by six or eight sutures. Cold-water dressing was ordered, and the patient carried to his room. In two weeks he was again brought before the class, with the wound entirely healed, and with comparatively little deformity. The tumor proved to be a beautiful specimen of osteo sarcoma, a section displaying a number of bony spiculæ very slender and long, between which was a gelatino cartilaginous deposit.]—*Nashville Journal of Medicine and Surgery.*

ARTICLE VIII.

Treatment of Exposed Pulps.

BY D. D. PEABODY.

Read before the Eighth District Dental Society, Buffalo, N. Y., May, 1875.

The dental pulp may be said to be exposed when the covering which has been provided for its protection has been by any means removed, permitting the approach and action of external influences. Occasionally, the removal of such protection is followed by no serious results for months, and even years: but, as we have learned by experience, the great majority of such exposures are speedily succeeded by the most intense pain, calling into requisition all our skill, as well as patience, for its alleviation, and the ultimate restoration of the tooth to its normal condition.

Let us look at the nature of the agencies most active in causing irritation of the pulp. They are numerous; but we will only mention three: chemical, thermal, and mechanical. The first two are most frequently found in operation in cavities of decay where sufficient enamel remains to prevent the ingress of hard substances in close proximity to the pulp, but where cold and hot fluids and chemical agents in solution readily find their way, and are generally the cause of the first alarm. Such are usually found between molars and bicuspids; while those oftener affected by mechanical means alone, are in the crown cavities of molars, and the worn and concaved apices of canines and incisors.

Let us consider first the simplest form of exposure, existing where the grinding surfaces have been worn by attrition until mastication has become painful. In such teeth there is usually no caries. Nearly always, the pulp has protected itself by the deposit of osteo-dentine from being completely uncovered, but not from the action of pressure on the fluids contained in the minute dentinal tubuli sufficient to be transmitted to the pulp, and thus cause pain. My only treatment for this difficulty has been complete dryness, and the thorough application of a moistened pencil of fused nitrate of silver to the sensitive surface, which should then be allowed to dry for ten or fifteen minutes. Thus far I have found one application to be sufficient. The next degree of difficulty in treatment is that form found in the approximal and distal cavities of incisors and canines and the crown cavities of molars; while those most difficult of access to the operator, and probably for this reason, the last to yield to curative treatment, are those in the approximal, distal and buccal surfaces of molars and buccal surfaces of molars and bicuspids. The first thing to be done is to ascertain the exact condition of the interior of the cavity, an unobstructed view of which may be best obtained, if at all, after the application of the rubber-dam. After the cavity is dried as much as may be by absorbents and warm air, the carious portion should be carefully removed with sharp excavators, exercising care to draw the instrument, not toward the inflamed organ, nor parallel to it, but directly away from it. After this is accomplished, if there is no discharge of serum or pus, and the most delicate touch of the instrument over the exposed portion causes slight pain, we may conclude that the pulp, though highly inflamed, has not been to any extent destroyed by disease. If the pain is accompanied by severe throbbing, an incision with a very sharp and thin lance is followed by almost immediate relief from pain. After the flow of blood has ceased—and the freer the flow the better—dry the cavity gently but thoroughly, and moisten whole interior with absolute alcohol. This may be readily obtained by the addition of the dried carbonate of potassa to strong alcohol, in the proportion of two drachms to the fluid ounce, and it will be found invaluable in this connection. Prepare the edges of the walls as if for final plugging. If there is a recurrence of the pain after depletion, tincture aconite one drachm, to one ounce chloroform may be used to good advantage. When complete relief from pain has been obtained, a few minutes rest from further treatment is advisable, in order to give complete assurance of the success of the foregoing; after which, if all remains quiet, the cavity is in readiness for the insertion of some filling to protect the work already accomplished. Now the question arises, what shall this be? There are various methods advanced by different operators, but I will only speak briefly of my own. After reading carefully the different views of many writers, and witnessing the operations of others, I have used in succession a thin paste of oxy-chloride of zinc, which I now regard as extremely dangerous; a varnish of Canada balsam in chloroform, followed by the oxy chloride which is little better; and gutta percha varnish, which is liable to fail from shrinking and drawing away from the walls. Though the last two are far preferable to the first, yet so much pain follows the insertion of the oxy-chloride, that for some minutes it would seem as if the last state of the pulp was worse than the first. Neither of these methods have proved entirely satisfactory. If practicable, I prefer to leave the osteo-plastic capping or filling *in situ* for two, four and even six months before inserting the final plug. This form of treatment I have practiced for about five years; and, prompted by curiosity, have removed several cappings to assure myself of results, which have been in most cases favorable; still I dare not assert that this course is by any means safe or certain. For a few months past I have found far more satisfaction to myself, and doubtless to the patient, from the employment of a varnish composed of gum copal one drachm, and pure sulphuric ether one ounce. Apply freely to the dried surface of the dentine and pulp, exercising caution that it be not allowed to pass outside the walls of the cavity. Dry with warm air and apply a second time, which will be found sufficient to cover the surface with a hard coating—closely adherent, non-conducting, and non-irritant. Over this, place a soft coating of Guillois' Cement, and allow it to harden; then fill the cavity with the same material, mixed as stiff as it can be manipulated, allow it to dry for ten minutes, and coat with sandarac varnish.—*Dental Advertiser.*

EDITORIAL. ETC.

Alumni Meeting.—All graduates of the Baltimore College of Dental Surgery are respectfully invited to attend a meeting to be held in the College Building, Corner Lexington and Eutaw Streets, Baltimore City, on Wednesday, March 8th, 1876, at 12 o'clock noon, for the purpose of organizing an "Alumni Association." The Annual Commencement of this College will be held at the Academy of Music, on Friday evening, March 10th, 1876.

JOHN W. FARMER, M. D., D. D. S.,
GEORGE F. KEESEE, D. D. S.
For Alumni.

Southern Dental Association.—The Eighth annual meeting of this Association will be held in Nashville, Tennessee, on the 11th of April, 1876, being the second Tuesday of the month. All dentists of good standing in the profession are cordially invited, to be present. Dr. Wm. T. Arrington, of Memphis, Tenn., is the President of this Association, and Dr. J. Hall Moore, of Richmond, Va., the Treasurer. Dr. Jas. F. Thompson, of Fredericksburg, Va., the Secretary, will furnish any information desired concerning the annual meeting.

The April meeting will be the third held in the Mississippi Valley during the past three years, and it is now time to choose another point further East and South. After the St. Louis meeting came the one at Memphis, in the same neighborhood, and the one now to be held at Nashville, is still in a triangle of the same section of country as the two preceding places. To have chosen a point East for the present meeting, would have afforded an opportunity for many of the members residing in Atlantic States to participate without being compelled to go so far from home, especially as this is the third time they have been called upon to do so within the past three years. We trust that a sufficient number of the members from the Atlantic States may attend the Nashville meeting to accomplish this object. Such a change of location will certainly prove beneficial to the Association.

The Ether Spray as an Anæsthetic.—Mr. Thomas Moore, M. R. C. S., describes the following case of excision by the scissors under ether spray in the *London Lancet*:—

"A maiden lady, aged sixty-four, came, on September 9th, from a town fifty miles distant, to place herself under my care. She was suffering from a very hard scirrhus tumor of the left breast, rather larger than a turkey's egg, which she had first noticed eight months before, when it was as large as a walnut.

On the 14th of September the operation was performed as follows:—First a spray of common ether was directed on to the breast for five minutes; then two sprays of anæsthetic ether were directed—the one by Mr. Cross, and the other by our assistant, Mr. Bayfield—on either side of the tumor, for five more minutes, until the whole breast was frozen quite hard. I then, after making an angular cut in the skin at the outer margin of the tumour, carried the lower blade of the cutting-scissors deeply down through the breast until it appeared to rest upon the pectoral muscle. Then, keeping this blade as deep as possible, I easily cut the lower flap, about an inch from the tumor, with three or four strokes of the scissors. The upper flap was cut as easily. I next thrust the fingers and thumb of my left hand deep into the wound, and, grasping the tumor firmly, raised it as far as possible from the pectoral muscle. It was then easy to detach it with a few strokes of a pair of tooth-edged scissors. The operation so far was completed in less than three minutes from the time of the commencement of the first incision, and was attended with very little loss of blood. When the spray was withdrawn there was some hemorrhage from three small vessels in the tissues which had been cut by the sharp-edged scissors, two of which were treated by torsion, and the other tied with silk, the ends of the ligature being cut off short. The edges of the wound were brought together by six sutures, and each of the twelve spots through which the needle was passed was previously separately frozen by the spray.

My patient, who declared beforehand that she was extremely sensitive to pain, gave very little indication of having felt any during the operation, and said afterward that "it hurt her, but not a great deal." That her estimate of her extreme sensitiveness was correct, (and indirectly the success of the anæsthetic) was proved by the fact that, during the introduction of one of the sutures through a part of the skin which had been accidentally insuffiiently frozen, she cried out loudly, and declared that this "hurt her worse than all the rest put together."

The wound, which was dressed with oiled lint and cotton-wool, united by first intention, except in a spot where I had made a slight notch at the junction of two cuts of the scissors, and at the place of the first incision; but there never was more than just enough discharge to moisten the dressing, and that was entirely dried up by the sixteenth day. The patient was confined to her bed for one day, and to her bedroom and an adjoining sitting-room for a week.

The scissors used for making the first incisions were ordinary "elbow-scissors," with the blades inclined to the handles at about a third of a right angle; those for making the deeper incisions were tooth-edged and slightly curved "on the flat of the blade."

MONTHLY SUMMARY.

Treatment of Neuralgia.—The *Practitioner* gives the following from Dr. Von Pitha on this subject:—

V. Pitha himself has suffered for two years from the most severe neuralgia, in consequence of an accidental wound in an operation, and his account of his own case contains many points of interest. In particular he dwells upon the vagaries of the imagination in this affection, and states that he was perfectly convinced he had a stone in the bladder, the irritation of the projecting spiculœ as well as the blows of the stone against the mucous lining of the viscus being distinctly felt; and he was only satisfied of the incorrectness of his opinion after the bladder had been carefully searched with a sound. From that moment all the sensations vanished. From observations on himself and others, he believes the subcutaneous injection of morphia to be the most satisfactory mode of administering it, since it operates quickly, and the narcosis is slight compared with the great diminution of pain that is effected; moreover, it may be frequently repeated without injurious effects. The smallest effective doses should be commenced with, and these should only be increased when absolutely requisite. He gives a caution against employing morphia in those who have disease of the heart, as it sometimes produces in them deadly pallor, cold sweats, etc. When the toxic influence of morphia is manifested he recommends energetic walking in the open air, washing of the skin with vinegar, clysters of strong coffee, and, in extreme cases, artificial respiration. As a remedy preventing the unpleasant after-effects of morphia on the stomach and intestinal canal, V. Pitha recommends hydrochlorate of quinine, or a minute proportion (100th of a grain) of atropia may be added to the injection fluid.

Subcutaneous Injection of Chloroform in the Treatment of Facial Neuralgia.—Geo. Wood, M. D., C. M., writes as follows:

Dr. C. H., aged about fifty, dark hair, eyes and complexion, very spare, weight one hundred and twenty-five pounds, has suffered from facial neuralgia of left side of the face since 1854; has undergone all systems of treatment with little or no relief. In 1872 had the lower jaw trephined and a section of the nerve removed; this gave him relief for several months, but eventually the neuralgia returned harder, if possible than ever. He first came under my care in August, 1873. I gave him different irons, tonics, bark, hypodermic injections of morphia, croton chloral hydrate, and also all the different and various neuralgic pills that I ever heard of, with but temporary success.

In August of 1874, I injected fifteen minims of chloroform underneath the mucous membrane of the lower jaw, as near the exit of the mental branch of the fifth pair as I could. It gave him entire relief in an hour, but caused partial paralysis of the muscles of the left cheek. In a week I repeated the injection and put him upon drachm doses of the elix. of guarana three times a day. In September and December, and also in April, he had a very slight return of the pain, each recurrence being less severe. At each of these times I repeated the chloroform, and he now seems to be entirely well.

My partner, Dr. Rose, had a lady patient, unmarried, aged about forty-five, who had been a terrible sufferer from the same disease for seventeen years; had consulted the most eminent men in this and foreign countries, and had tried all the prescriptions recommended. The only thing that gave her any relief was the hypodermic injection of morphia. She was obliged to use them, sometimes several times a day. Her mind and morals were very much disordered. Dr. Rose tried the hypodermic use of chloroform, and she is now entirely well. Her mind is as clear as of yore, and she seems and acts like a new being. The injection of chloroform is extremely painful unless preceded by an injection of ten or fifteen minims of Magendie's sol. of morphia. If this suggestion can give relief to others suffering from this most painful disease I shall be most happy. I intend using the chloroform in the first case of sciatica that comes into my hands.—*Canada Med. and Surg. Journal.*

Antidote to Carbolic Acid.—A German contemporary affirms that the best antidote to carbolic acid is saccharate of lime, obtained by the solution of sixteen parts of sugar in forty parts of water, to which is added five parts of caustic lime. The solution should be filtered and evaporated to dryness. It is then easily soluble—*The American Medical Weekly.*

Plastic Operation for the Lower Lip.—In the *Transactions* of West Virginia. Dr. M. F. Hullihem, of Wheeling, gives an account of a plastic operation for the restoration of the lower lip, in the person of a soldier, who had lost the lip by gunshot wound. Measuring vertically, about one half of the lower maxillary bone, from the second bicuspid tooth on the left side to the first molar tooth on the right side, together with all the intervening teeth, had been shot away.

I made incisions, one inch and a quarter in length, carried in a straight line from each commissure of the mouth, directly into and entirely through the substance of each cheek. From the outer extremity of these incisions, another incision was made obliquely downward to the margin of the orifice, thus forming a triangular flap in each angle of the mouth. The mucous membrane lining the flaps thus formed, including a proper amount of structures beneath to insure vitality, were, save at the point of their lower attachment, carefully dissected away, after which the flaps were removed. The bases of these flaps pointed directly to each angle of the mouth, and measured in width (with a proper allowance for shrinkage) the distance it was necessary to raise the portion of chin out of which it was proposed to form a new lip.

After the bleeding ceased, an incision was made on the inside margin of the callous tissue forming the base of the orifice, and the skin and subjacent textures were dissected away from their attachments to the lower maxillary bone, until they were capable of being raised up to the desired position without the least stretching. This perpendicular incision was commenced at points nearly opposite the first molar tooth upon each side of the mouth, and extended from the margin of the orifice to a point fully half an inch beyond and around the base of the chin.

At this point of the operation, the mucous membrane, saved and dissected from the flaps removed at each angle of the mouth, was successfully utilized.

The bleeding having ceased and the chin substance being raised to its proper position as a lip, these thin flaps of mucous membrane were carefully turned around and secured to it with fine sutures of silk, forming in their joint extent a very respectable amount of inner lining. Elliptical incisions had been carried into the mucous membrane of each cheek, in order to allow these flaps being easily and properly turned into position.

The parts were now brought loosely together, and the patient placed in bed.

In the morning he was quite comfortable; the loose dressings were undone, and the raw and cut surfaces, from which all bleeding had ceased, were exposed. The teeth remaining in the back and uninjured portion of the lower jaw bone, three on one side and two on the other, stood elevated fully one and a half inches above the line of cut surface that covered what was remaining of the front and injured portion of the same bone. A large dental impression cup, especially contrived for the purpose, was filled with prepared plaster of Paris, and an accurate impression of the parts was obtained. From this impression, Dr. A. H. Fleming, dentist, by the evening of the same day, succeeded in making, in rubber, a very good substitute for the portion of jaw bone that had been shot away and which was surmounted by the proper number of artificial teeth. After the insertion of this plate, the parts were all brought securely together, the angle of the right side of the mouth being alone left open to permit of any future manipulation that might be necessary. One of the attendants had made, under my direction, a tight-fitting skull cap, and a stirrup, fitting accurately under the chin, furnished with a number of strong straps and buckles. After cropping the hair closely, these were applied, and by their means, the parts were kept in position. The healing took place rapidly and satisfactorily.—*Med. and Surg. Reporter.*

Borate of Soda Gargles.—A pharmacist of Lyons remarks that in gargles, borate of soda is generally combined with honey, or honey of roses, or even with syrup of mulberries ; that is to say, with products which dissolve a very small quantity of this salt. It would, therefore, be more advantageous to compound these measures with equal parts of glycerine and borate of soda. A definite and considerably more active solution is thus obtained ; for glycerine mixes well with honey, as well as with syrups.—*Med. and Surg. Reporter.*

Quinine Gargle in Sore Throat.—Dr. George Johnson gives the formula below as of excellent effect in sore throat, even severe diphtheritic cases :—

℞	Quiniæ sulphatis,	gr.xviij
	Acidi sulphurici diluti,	♏xlij
	Aquæ, ad.,	f ℥ vj. M

He adds, I have found the quinine solution useful as a wash in aphthæ, stomatitis, and other affections of the mouth ; but my experience of it in these cases has been limited by the difficulty attending its use in childhood, owing to its very bitter taste.—*Med. and Surg. Reporter.*

Andral for Glycosuria.—In the *Gazette hebdomadaire* for April 16th, 1875, we find an analysis by Andral of eighty-four cases of glycosuria of which he had kept notes. It appears that the disease is very rare under 20 years of age, less rare between 20 and 30, most frequent between 40 and 50, little less so between 50 and 70, and very rare after the latter age. Of the eighty-four there were fifty-two males and thirty-two females. Various nervous affections seem to have an influence in developing or aggravating the glycosuria; a deficiency of food amounting almost to starvation led to the disease in four cases. On the other hand, Andral had observed that many of these patients have been notably strong and vigorous before the development of the diabetes. An accidentally complicating disease will often cause a temporary diminution of the sugar eliminated; as for ample an angina and a dysentery. A degree of hereditary influences was observed. While the general circulation ordinarily exhibits no lesions, the capillary circulation often does so, as, *e. g.*, in swelling and redness of the gums, injection of the conjunctiva, erythema of the skin and congestion of the lungs. There were four cases of gangrene among the eighty-four; viz: once in the lungs, and three times in the feet and legs. The acid reaction of the saliva that has been observed may be due according to Andral, to an admixture with the ordinary mucus of the mouth. At the autopsies he constantly observed congestion of the liver and kidneys, attributable in the latter, at any rate, to excessive functional activity. There was also a peculiar induration and dryness of the spleen. Tubercular granulations were commonly found in the lungs, which Andral regards as secondary deposits due to the debility caused by the diabetes. No new points were brought out regarding treatment.—*Medical Record.*

New Remedy for Burns.—There has been in a hospital for many months a case of extensive burn, in which different applications have been tried. Every new dressing succeeded well for a time, but soon it ceased to prove of advantage. The last agent that has been used, and is at present, is salicylic acid. The effect is more beneficial than that obtained by any of the former remedies. The method of using it is to form an emulsion with olive oil, one part of the salicylic acid to sixteen parts of oil. This mixture is painted over the ulcerated surface once or twice a day. It gives rise to a slight smarting sensation when first applied, but that soon passes off.—*The Pharmacist*, August, 1875.

Making a New Nose out of a Finger.—At the recent meeting of the British Medical Association, Dr. James Hardie, of Manchester, gave an account of a new rhinoplastic operation, which consisted in the substitution of the upper phalanx of the forefinger for the nasal bones and cartilages, so as to give the required nasal prominence. In the case of a young girl who had lost both nasal bones and cartilages, Dr. Hardie, after a failure of other methods, bandaged the arm in such a position as to enable the forefinger to be laid and plastered upon the nasal cavity, in which position the finger was kept for about three months. Gradually the finger became attached to the cavity, and ultimately the upper phalanx was separated from the rest by the forceps. Dr. Hardie's first intention was to employ the finger merely as a substitute for the nasal bones and cartilages, and to lay over it flaps of skin from the face or arm in the usual manner, and to this plan he ultimately returned, although at one time he was so satisfied with its appearance as to think of using the phalanx itself as a substitute for the nose.—*Boston Med. and Surg. Journal.*

Applications to Burns.—Mr. Charles Rice states that being requested to search for an application which would combine *transparency, cleanliness, body, rapidity of drying* and *flexibility,* he has succeeded in making the following combination, which has been used for more than a year in the hospitals of New York. "Take of the best *white glue* (extra) 15 ounces. Break it into small pieces, add to it 2 pints of cold water, and allow it to become soft. Then melt it on a water-bath, add to it fluid ounces of glycerine and 6 drachms of carbolic acid, and continue the heat on the water-bath until a *glossy, tough skin* begins to form over the surface in the intervals of stirring. The mixture may be used at once, after the glue is melted and the glycerin and carbolic acid are added, but when time allows, it is advisable to ged rid of a little more of the water, until the proper point is reached. On cooling, this mixture hardens to an elastic mass, covered with a shining parchment-like skin and may be kept for any time. When using it, it is placed for a few minutes on the water-bath until sufficiently liquid for application; (it should be quite fluid.) Should it at any time require too high a heat to become fluid, this may be corrected by adding a little water. It is applied by means of a broad brush, and forms in about two minutes a shining, smooth, flexible, and nearly transparent skin. It may be kept for any time, without spoiling, in delf or earthen dishes, or pots turned upside down. —*Medical News and Library.*

Mode of Administering Ether.—In the recent work of Dr. Robert B. Carter on the Eye, the writer refers to a plan adopted by Dr. Hood, of preceding the use of ether by a little chloroform, administering enough of the latter to impair the acuteness of sensation, but not enough to approach the confines of danger, and then completeing the anæsthesia by a full dose of ether given in the ordinary way. The method is not entirely new, and there are some cases, especially in children, in which it has decided advantages. One difficulty, however, is to determine where the confines of danger are located in the inhalation of chloroform.—*Pacific Medical and Surgical Journal.*

Chloral as a Local Application for Ulcers.—On visiting the wards of Guy's Hospital on the 7th of October, we saw several patients on whom a solution of hydrate of chloral had been used as a local application to ulcers, and the results appear to be sufficiently satisfactory to be worthy of record. Mr. Lucas commenced the use of chloral among his out-patients in August last, for cases of sloughing wounds and fetid ulcers, and being pleased with the result, he has since given it a somewhat extensive trial in the wards. The effect of the local application of chloral appears to be that of a powerful stimulant and disinfectant; it has no soothing or sedative effect upon the part to which it is applied, but, on the contrary, gives rise to considerable pain, which lasts some time; nor does it, even when used over a very extensive surface, ever become absorbed in sufficient quantity to act as an hypnotic. Whether it is taken up into the circulation or not matters little, since the quantity used as local application is so small compared with the dose administered as an internal remedy, that, where the whole of the drug applied to find its way into the blood, the quantity absorbed would still be very much less than that of an ordinary sleeping draught. Its local application is, therefore, eminently safe and free from the dangers which sometimes follow the use of opium lotion or carbolic lotions long continued. Mr. Lucas has used solutions of various strengths, that which he has found most useful being a solution of four grains of hydrate of chloral in an ounce of water. The application of a lotion of this strength is, as we have just stated, often attended with considerable smarting which may last a quarter of an hour, but the smarting becomes less at each subsequent application. In cases where the patients have complained much of the smarting, the lotion has been diluted to the proportion of three or two grains to the ounce. The treatment of foul sloughing ulcers by means of chloral lotion has been attended with great success, the surface of the sore quickly cleansing and assuming a healthy appearance, whilst the subsequent healing has advanced with rapidity in some cases quite astonishing.—*Med. News and Library.*

Preservation of Leeches.—A concentrated solution of salicylic acid speedily destroys leeches, but a very weak solution preserves them in all their vigor. Four drops of a solution of a gramme of salicylic in 300 grammes of water to each 100 grammes of water is the strength recommended.—*Jour. de Chemie et de Pharmacie.*

The Antiseptic Properties of Salicylic and Benzoic Acids.—Prof. E. Salkowski, of Berlin, has been making some experiments on the relative antiseptic properties of salicylic and benzoic acids, adding these substances to albuminous solutions, and observing their condition subsequently as to turbidity or clearness, reaction, odor of putrefaction, and the occurrence of mould and bacteria. He concludes that salicylic acid in concentrated aqueous solutions can retard putrefaction, but cannot prevent it. He denies that it possesses deodorizing properties, as has been claimed, arguing that a deodorant action is to be explained in one of the following ways: either by the destruction of volatile emanations from the fluid, as permanganate of potash, chloride of lime, or sulphurous acid act; or by absorption, as in the case of charcoal, gypsum and the like, or by disguising the odor of decomposition, as does carbolic acid. He states that salicylic acts in no one of these ways, nor does he consider the assumption of Kolbe tenable, that it acts by breaking up into carbolic and carbonic acids. On the other hand, he declares that benzoic acid possesses much stronger antiseptic properties. He conjectures that the mode of preparation of this acid influences its antiseptic qualities, and recommends only that prepared from wine by the best makers. An other advantage is, that it is very much cheaper than salicylic acid. Our author considers both of these acids alike unfitted for internal use as antiseptics or antizymotics, because they are converted in the blood into soda salts. Neutral substances, or such as pass through the system unchanged, are to be preferred for this purpose. Among these, phenol, its substitution products, such as thymol, and the ethers of phenol, are pre-eminent.—*Med. Record.*

Glass Cement.—A cement to stop cracks in glass vessels, to resist moisture and heat, is made by dissolving caseine in a cold saturated solution of borax. With this solution, paste strips of hog or bullock's bladder, softened in water, on the cracks of glass, and dry at a gentle heat. If the vessel is to be heated, coat the bladder on the outside, just before it has become quite dry, with a paste of a rather concentrated solution of soda and quicklime or plaster of Paris.—*Exchange.*

THE

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ARTICLE I.

Virginia State Dental Association—Sixth Annual Session.

(Reported Expressly for this Journal.)

THIRD DAY.—*Morning Session.*

The Association met pursuant to adjournment, the President in the chair.

The report of the committee on Mechanical Dentistry was called for. It was stated that none of the committee were present.

The subject of the use of Celluloid having been broached, Dr. J. F. Thompson, of Fredericksburg, gave his views concerning this base. He had used it for three years to the exclusion of rubber, and with such satisfactory results as to induce him to continue its use permanently. He hoped that the members present who had used or experimented even with celluloid, would report their views, giving not only their successes with it, but their failures also. For his part he had made not a single failure so far. Compared with rubber he thought it far superior; his patients greatly preferred it, in fact refused to have rubber. He had no hobby to ride, was only desirous of getting the best results for his patients, and he was sincere in his conviction of its superiority to vulcanite.

Dr. Henkel, of Staunton, had used celluloid for over three years. Had made twenty-two pieces, had replaced four of these. His experience was that it changed color in the month. He thought the plates lately made better than the first ones. Had learned from his failures something of the peculiarities of celluloid; these required to be consulted and overcome. If it proved as satisfactory in the future as in the past, he would not use vulcanite again. It flows better than the latter, was sufficiently strong, and of a good color.

Dr. Frank Harris, of Harrisonburg, said he had commenced the use of celluloid in February last. He had worked seven plates; of these, two only were still in wear. One of the plates he inserted was of so poor a character that it warped from the contact of hot tea on the first trial. The lady wore it home took hot tea for her supper, and found the plate warped out of all shape. He could not think it equal to vulcanite.

Dr. Thompson thought it ought to be kept in water when not in the mouth. He had not seen any warping in his own practice, and had met with no such failures as the last speaker reported.

Dr. Keesee, of Richmond, thought that if we would give celluloid a little time, the failures would be less numerous. It certainly seemed very strong; the tests he had applied had proved it superior to vulcanite in this respect. The question of its permanency was of course only to be settled by time.

Dr. Johnston, of Staunton, reported having seen a piece in use over four years in which no change was apparent. There was neither discoloration, flaking or warping. All the pieces he had made were satisfactory, and he preferred it to any plastic base he had seen.

Dr. Thackston, (Dr. Moore in the chair.) I have been in the profession for many years. I entered it when no such thing as plastic work was known. I have never been a hobby-rider, but aimed at conservatism. I commenced with gold, when most pieces were made of that material. I consider it now, as then, the perfection of bases for dental plates. Platinum, palladium, silver, in turn had been tried; and these were succeeded by cheoplastic work, and this again by rubber. I am familiar with the whole history of the vulcanite question, and can assure you gentlemen, that the difficulties that are now attending the introduction of celluloid, and its adaptation to dental uses, are not to be compared with those that accompanied the use of rubber at its inception. With regard to vulcanite I cannot think it in any way comparable to celluloid. Its color is bad, it acts as a local irritant, it is indeed in many cases a positive poison. I have no prejudices to foster. While I used the rubber, I cheerfully paid the royalty so long as the Goodyear patent was in existence, as I considered it a valid and just claim. When it expired and the Goodyear Dental Vulcanite claimed royalty on the Cummings' patent I declined to pay it, deeming it an unjust and wicked tax. I did not, however, in a covert way seek to avoid payment of this tax, and at the same time secretly endeavor to continue the use of vulcanite, but at once laid it aside, discontinuing its use entirely. For a time I was without any satisfactory plastic base as a substitute for rubber, and for the cases in which I had demand for a cheap base I used silver or platinum. Three or four years ago my attention was called to celluloid, then first being introduced. The first pieee I made was moulded after the old oil process, with gum teeth. That piece now over three years old, is still giving satisfaction, and is perfectly successful. I have found celluloid more available and more satisfactory than rubber. I would not return to the use of rubber if Bacon & Co. would offer me a fee simple right to use without cost forever. I have wholly, utterly and finally discarded and rejected vulcanite as a base for dental plates. I think, as has been suggested, that the plates should be well seasoned, and time taken in their moulding.

Dr. Keesee. Can Dr. Thackston give a satisfactory explanation of the dark line we see around or near the vacuum cavity in celluloid plates?

Dr. Thackston. I have seen no explanation that is satisfactory,—the theory advanced by a writer in the *Dental Cosmos*, that it was due to a lapping of the plate at that point, I hardly think fully accounts for it.

Dr. Frank Harris thought that rubber had greatly improved—the whalebone and bowspring varieties being greatly superior to the red rubber of 1868-70. With regard to celluloid his failures were too manifest and palpable to be counted as accidental. He hoped that the day would come when rubber could be discarded, but at present he confessed he saw but little hopes of relief in celluloid as a substitute. He had never seen a case of rubber disease, so called.

Dr. Cowardin had seen two cases of rubber poisoning cured by the insertion of metallic plates.

Dr. Henkel was sure that rubber plates did produce poisonous results.

Dr. Perrow had never seen a case of mercurial poisoning from a rubber plate. He could not see how celluloid could take the place of rubber, if the testimony of those who had spoken here was to be accepted.

Dr. Sydnor, of Salema, Va., thought that perhaps the failure in the case of Dr. Harris, might have been due to the imperfect seasoning of the plates. He inquired if it was known that celluloid would answer for regulating plates where thinness and elasticity were required.

Dr. J. Hall Moore, of Richmond, said that it was well suited to just this class of work. His opinion of its strength and firmness was corroborated by Drs. Keesee and C. A. Mercer, of Richmond.

Dr. Thackston. We should not condemn celluloid because of a few failures. It is unreasonable to expect perfect success with anything, especially with so new and only partially developed a substance as this. We should consider the great number of failures that had been made in continuous gum, how many years of failure preceded success.

Dr. Frank Harris replied defending his position. He could not attribute the failure he had made to faulty manipulations. No one would rejoice more than he to know of a good substitute for rubber, but he was afraid to take celluloid as that substitute.

Prof. Hodgkin. Celluloid has its peculiarities which must be recognized and complied with before it can be successfully worked. It is yet in its infancy. But depend upon it the time must come in its history, that this infant will go forth strong and in every way desirable. It has been well said here this evening, that we should not condemn it hastily for a few faults, nor cast it aside because we do not at first accomplish all with it that we could hope or desire. It is certain that in beauty, naturalness of appearance and the perfection with which it copies the finest lines, it is superior to any plastic base so far produced. Its durability can only be tested by time, but if the testimony of not only the larger majority of those here present, but of dentists all over the land can be believed, it is a satisfactory substitute for rubber in all those qualities which render that base desirable, and is vastly superior to it in color and exemption from the suspicion of mercurial poisoning. The dry heat is better than oil or steam, and if the pieces are reinvested after polishing and kept at a moderate temperature, (say 120° or 130°) for eight or ten hours, much of the camphor is driven off. When it is desirable to slightly change the color of the gum, the etheral solution known as collodion, (that which is colored pink,) may be painted on the gum and will change the tone. A thermometer is simply in the way.

The subject was further discussed, and the subject of mechanical dentistry was passed.

Dental Pathology was called. An essay from the pen of Dr. Burkholder, of Harrisonburg, Va., "On the Preservation of the Deciduous Teeth, was read.

Adjourned.

Afternoon Session.

The Association re-assembled at 3 P. M.

The subject of Operative Dentistry was called.

Dr. Jeter, of Richmond, was not prepared with a report, he was not the chairman of the committee.

Dr. Thackston. It is to be hoped that in future the members of the various committees will not rely on their respective chairmen to prepare reports, but that each member will look on his appointment as an indication that he is expected to present a report independent of any that may be made by the chairman. We should not look to the chairman and conclude that because he is the head of the committee, that therefore he is to do the work of the committee. Let each member while co-operating with the others, yet not rely on them to do his work.

Dr. Jeter. I hope sir, that the Association may have the benefit of the counsel of Prof. Hodgkin, who, coming from Baltimore, the headquarters of Dentistry, should be well posted.

Prof. Hodgkin. I fear Mr. President, that I shall lay myself open to the imputation of being old-fashioned, in prefering and adhering to old methods and old instruments, to old forms of foil and old styles of work. The longer I live and practice dentistry, the more strongly I feel the difficulties of the position I occupy, both as a teacher and as a practitioner. When I hear gentlemen say, as I do sometimes, that they have no trouble in performing this or that operation, that they never fail in their manipulation of this or that form of gold—usually the newest form,—and when no failures are reported in celluloid or other styles of work, I am inclined to feel envious of them, and to lament my own failures and shortcomings. It has seemed to me that now-a-days one is thought not to be up with the times unless he uses the thickest and most adhesive of gold foil which must be driven into the cavity and against its frail walls, with mallets of ever so many muscle power. That unless the operator has a burring engine, and a pneumatic, automatic, hydraulic, electric or some other motive-power mallet; that unless he is equipped with rubber dam and clamps and all the multitudinous apparatus of the present day, that his mission will be a failure, and his practice ooze away into the hands of the more fortunate possessor of these nice things. But, Mr. President, I cannot ignore the fact that long before the days of mallets and engines, of double action engines and rubber dam, work was done, that was in every respect, in so far as service to the patient was concerned, and durability, and of æsthetic beauty, equal to anything that is now-a-days produced. I do not involve in a wholesale condemnation all these improved adjuncts—they are most useful and important in place, but the fear is that our young men will be too much inclined to depend on these to the exclusion of the painstaking care and thoughtful manipulation dentists formerly gave their work. All these things are valuable, but they are not dentistry; they are not and cannot be a substitute for honest toil and painstaking. I confess my attachment to the old fashioned soft foil and hand pressure. I have tried and found wanting many of the methods vaunted as the "best thing out," best apparently, because newest; and I consider that for the most part, I do better work, get more gold in a cavity with hand pressure and foil of which Abbey's old soft gold foil is the type, than with any of the modern styles. I do not reject adhesive foil, but use it as the exception and not the rule, and depend greatly on a lubricant known as "elbow grease."

Dr. J. Hall Moore, of Richmond. I think the profession is drifting back to old practices and old methods. I have laid aside for some time my automatic mallet, and dropped the use of adhesive gold. I use non-adhesive gold in strips or cylinders. I have no faith in sponge gold, the numerous failures in my practice and seen in the practice of others, have led me to abandon its use I shall be considered by some I fear, as an "old fogy," but I have been so long in the way of using plain foil that I do not feel like changing to anything else, unless the advantage of doing so is shown to be unquestionable.

Dr. Moore here exhibited a small brush to be used with the burring engine for polishing teeth and fillings, which he found very useful.

Prof. Hodgkin. Let us understand what we mean by soft foil. I think the confusion and obscurity on this subject is considerable, and due to a want of clear application of the properties of gold. It has been well said by Dr. Latimer, of New York, that gold, be it foil or plate, is softened by annealing. Why then is it that we find the plate is more easily swaged after annealing, and the foil is less easily manipulated? It is not that the foil is made harder, though it seems to be so, but that it has lost its adjustability. A piece of gold is placed in position in the cavity, and if of unannealed gold, the succeeding piece is easily pushed against or past it into position. Its adjustability is at the maximum. But if it be adhesive, (or cohesive if we prefer that term,) it sticks fast one piece to the other,—its cohesion being in the way of its adjustability, this last quality is at its minimum. Evidently, a quality in foil which enables us to place it in any position we desire, which is not in the way of its going nearer to its place is eminently desirable; a foil which does not possess this trait, whatever value we may attach to its cohesive properties,—and that this property is valuable for some purposes, I cheerfully admit,—cannot be so generally useful as the soft, or plain, or adjustable foil.

Dr. W. Leigh Burton, of Richmond, stated that he used soft gold foil in filling teeth, generally using as fine as No. 4.

His manner of preparing it as follows: He takes a sheet and cuts it into three strips of equal width, and *ropes* them. Each rope is then cut into sections more or less, according to the size of the cavity to be filled, and each section folded in the form of a pellet. In case of a very large cavity, the whole or half of a sheet may be used, prepared in the same manner.

He uses a fine pointed plugger with a cut across the point, or slightly roughened with a file. Each pellet is taken on the point of the plugger, placed in its proper position in the cavity, *taking care always to allow a surplus of gold to project above the margin of it.* In large cavities, after the pellet has been placed in position, a smooth faced foot-shaped plugger, and a few blows from a mallet, will assist greatly in giving solidity to the filling; and thus the operation is continued until the cavity has received all the gold it will hold. The next operation is that of consolidation, and in this the use of the surplus gold around the margin of the cavity will be made manifest. Still using a fine pointed instrument, this is consolidated at first by hand pressure, and completed by a stout fine pointed instrument and mallet. In the use of the mallet for this purpose, great dexterity may be attained, with absolutely little or no inconveniences to the patient. Holding the instrument in the left hand, and causing it to spring off a short distance from the filling, the right-hand is enabled to administer the blows with a rapidity equal to if not greater than any automatic instrument. The operation is then completed in the ordinary manner by grinding down the surplus gold, and polishing the filling.

Dr. L. M. Cowardin, of Richmond, used Pack's foil. He thought there was a great difference of foils, even of the same manufacture; thought that the foil which was in the books with smooth paper leaves, worked better than that between rough paper. He had been so struck with this as to lead him to select the books with smooth paper exclusively.

Dr. J. F Thompson, of Fredericksburg, said that in his attendance on the meetings of the Southern Dental Association, from year to year, he was struck with the fact mentioned by Dr. Moore, that the dentists were drifting back to soft foil. He found he could do more with soft foil than with adhesive, and used it almost exclusively. His method was to fill the cavity with unannealed foil, and then add a little of the same foil annealed for finishing the surface. He thought that in this way he secured the best results, the annealed foil adhering strongly to that already in the cavity, and giving a hardness to the surface not attainable by the soft foil alone.

Dr. Burton. I do not use annealed foil for finishing my fillings. I can gain as good a finish to them with the plain foil as I desire.

Prof. Hodgkin. If I may be allowed to criticise the method of Dr. Thompson, and others who have spoken, I would say that I must dissent from their views as here expressed. It is allowed on all hands, by all who have spoken, that soft foil is used in preference to the adhesive, because of its property of adjustability, by reason of which it can be forced against the walls of the cavity more closely; in a word, because better margins to the filling can be made. Now it does seem to me that the position assumed by the gentlemen who advocate this mixed use of foil, is most unfortunate,—for if it be a fact, that soft foil goes closer to the walls, it is a more important fact still, that the margins of the cavity are just where we want the very closest possible adaptation. If it be true that adhesive foil will not make as good borders as soft foil, there is no escape from the conclusion—they have made it for themselves—that the surface, if anywhere is the place for foil of this soft character. If I am to make a combination filling of two varieties of gold foil, then it does seem to me, that anywhere than at the finishing, would be the place for the adhesive foil.

Dr. Frank Harris gave an account of an operation he had performed—the building up of an incisor, in which he had laid the foundation of the filling with Hasting's gold annealed, and made the bulk of the work of Watt's crystal gold. He felt that the operation was one that would be durable, and while he had not, as some, gone crazy on the subject of adhesive foil and building up teeth, yet he was not prepared to accept the views of those who so sweepingly denounced all gold and all work that was not of the strictly non-cohesive type.

Dr. Henkel had used and experimented with a number of varieties of gold, and he felt when he wished to do work that would prove permanent, he preferred soft foil.

Dr. Moore. I would call the attention of members of this Association, to a filling formerly considerably used, but for some time out of fashion. It was my practice in years past, to put in a good many fillings of gold and tin foil combined, and I confess the fillings thus made, have proved more durable than most others. I hardly know why I left off this method, but I feel convinced that it is a most useful and enduring filling, requiring considerably less labor to insert than gold, and possessing a most remarkable property of hardening like amalgam, the whole filling apparently becoming as hard almost as steel. There seemed to be no galvanic action in the two metals thus combined, and it apparently had the effect of hardening the walls of the tooth like amalgam.

The subject was passed, and that of Dental Education was called.

Dr. Burton said the committee had no report. One new book he believed had been published, that of Salter, but he was not advised as to its contents.

The new constitution was read and adopted.

The following essay was read by Prof. Hodgkin.

It is a source of great gratification to those of us who are trying to educate the future dentist to know of the stir that is going on on this subject of dental education. It is a sign of the times prophetic of better things for those who teach and those who are to be taught; and as better for the masses who used the services of the dentist. Earnest men are at work at this problem of education, and if good does not result I shall be mistaken. It is well that this agitation is going on; it is doubtless a sign of something at fault; but as instruction in all things is gradual, it may be but not to hurry too much the changes we may see needed in our present methods of teaching. Sudden and violent changes in any department of study are to be dreaded.

We should take into account the youth of our profession, take into consideration the amazing rapidity which has characterized its growth. Let its bones solidify and its muscular system get tone, before we criticise its numerous organizations.

The colleges are doing well. If it were put to the test we would see that in so far as anatomy, physiology and chemistry are taught, they are taught quite as well if not better than in medical schools.

This subject of dental education is strangely misunderstood by the profession at large.

No doubt there are defective methods of reaching in use, no doubt the curriculum of our colleges is not just what is best, methods of teaching are human, and our work in this direction is as liable to error, to impufaction, to want of success, as any other purely human undertaking.

How easy it is for those outside to say how a college should be conducted.

The causes of apparent failure. I have said *apparent*, for it is only such. No real failure I think is seen in the work of our dental colleges that would not more readily occur or to a greater extent in a medical or law school. If we reflect for an instant on the incompetent men who are turned out in droves annually from the various institutions of learning, to crowd the lower stories of the professions, we may feel thankful that we are in as good a condition to throw stones at others as we are. I feel sure that if some "mind meter" test could be applied to the multitudinous throngs, who, hungry for fees and places issue forth to "locate," it would be found that those coming from dental schools would compare favorably with others.

Dental schools do all for their students, (allowing for the frailty and imperfection of human teaching,) that the material they have to work on will allow.

" You can't make a silk purse, &c." Those who come with fair brains and a fair preliminary training, graduate with credit as a rule. But how many are found for whom no one could ever hope substantial success in anything.

Here then is the root, or the roots of the evil. First, want of capacity. Second, want of adequate preliminary. The first class is comparatively small; training the second is large, much larger than is usually imagined.

At first sight one might suppose that such an element, such as is first mentioned, might readily be eliminated from the classes; it is not so easy. With very many who enter on the study of anything it is only by a process of evolution, often of a slow and painful sort that the gradual development of faculties can be brought out. You cannot ask a new man and in a casual inspection determine his fitness, his qualifications for dentistry. Few will deny the necessity for peculiar gifts, but often these lie dominant and undeveloped until by the slow dawning of light, his faculties become fully apparent, and he stands before you with talents which until then you little dreamed of. I confess my great surprise and astonishment at the development in students of capacity whom I had considered hopeless cases or nearly so. I know that occasionally an almost full-pledged dentist comes along, but how rare these are, any dental professor—notably any demonstrator—will tell you. Your youth who is the pride of his doting parents, who can mend your clock or take your wife's sewing machine to pieces, is not necessarily a dentist even in embryo, and too often his natural gifts in this mechanical direction are sadly in the way of his advancement, as the self-conceit that often give rise to, is an effectual bar to advancement From all students, deliver me from him who knows all about it before hand.

After all, the proportion of those students who enter the dental profession not gifted beforehand with natural ability, either dominant or manifest, is, I think not large. I feel every year as I teach, that the difficulty is so much not in want of natural aptitude—though this is no mean trait—as it is in defective mental culture. Depend upon it gentlemen, the world is getting to realize more and more every day the importance of the doctrine, of the superiority of mind over matter. It is your scientific farmer who beats the practical man; it is science applied every day in all departments of industry that is acheiving results that your practical man lies in wait to sieze and use all the time it may be dividing the work of the toiler without whom he could not subsist. Science is power, dominion, control over matter, and in so far as the dental student masters it, in so far will he be able to make his practice a success.

Defective mental culture is, I feel sure, at the bottom of many men's failures, (assuming that there is mind to cultivate,) and no less of dentists than other people. How few can analyze a proposition, state a fact clearly, reason out a deduction. Indeed there are few of us who feel more matured, who are called by reason of supposed peculiar gifts to fill chairs in colleges, who do our own thinking. How few are the thinkers. We can count them on our finger's ends, and not use up all the digits by any means.

So long as dentists are no more selective in their material for office students than they are, so long will the colleges find trouble in their subsequent work. It is with little discrimination apparently that dentists take private students. I will not say that they are influenced by unworthy motives, but the material they forward to us with letters of recommendation, certainly does not always reflect credit on their judgment.

The colleges ask the support of the profession. But it is well for the profession to understand clearly the character of the support asked for. It is not to crowd the seats of our lecture rooms with crude material, it is not to forward to us under certificate students who are able to make a rubber plate and nothing more. It is not to send us yonng men whose ability is altogether in their fingers, but it is to send us students who are able to intelligently follow a plain lecture on anatomy, etc., who are not obliged to be taught the rudiments of the English language; who are sufficiently posted in elementary physiology, anatomy, chemistry and the special relations of their sciences to dentistry to comprehend technical terms, and a great reform will have been worked.

How much time is spent in teaching students that which they ought to have mastered in school, would astonish any one not conversant with the subject. The amount of ignorance of the simpler, scientific facts is distressing. If it were so in dental schools only, it might be used to prove that the material of the profession is poor; I colld readily show you that it is just as bad in the medical profession.

The cure is in the hands of you who undertake the preliminary training of the student. The colleges can be made by you just what you wish them to be. But when students habitually sit in our lecture rooms and yarn at words and phases unintelligible to them, when students show by their very acts as some do, that their desire is not to get an education so much as to get a diploma, is it any wonder that lectures are dispirited, or that dental education seems to flag.

Dr. J. F. Thompson, read an essay on Irregularity of the Teeth as produced by Thumb Sucking.

Drs. Henkle, Steele and Prof. Hodgkin discussed this paper, both thinking that the habit of thumb sucking was not to any great extent the cause of irregularity.

The subject of voluntary essays was passed.

Prof. Hodgkin. I ask the attention of this Association to a case which presents great interest, and some of the points of which I confess are so startlingly new, as to cause grave doubts as to its proper representation to me by the parties who related it, and yet I have no reason to doubt their veracity. I called last night to see an old friend whom I had not seen for some years, and in the course of the evening's talk, he with his wife gave me the history of their daughter's teeth, a young and most interesting lady not yet hardly grown. It seems from their statement, that the teeth of this girl began to loosen from absorption of the alveolus and recession of the gums when she was only thirteen; and she had soon lost several in this way; while all the others above and below were so loosened, as to promise soon to follow the same road. Indeed they were in such a loose state that the parents consulted a dentist with a view to having them all extracted, thinking it as well to anticipate what seemed an inevitable fate. Before fully deciding on this step, however, (and I should say that various attempts had been made by different dentists to arrest the disease without avail,) a practitioner of medicine of this city of Richmond was consulted, and he gave it as his opinion that the case was one of mercurial poisoning, occurring twelve or more years previously, when the patient was then a small child. Her parents are very positive in their statement that she was never salivated, though admitting that considerable mercury was administered. The M. D., they reported as saying that it would take about ten years or so for this mercurial disease to culminate, which would bring it about to the time from when the mercury was given, to its alleged local expression three years ago. I confess my surprise at this diagnosis, coming even as it does from an unusually acute gentleman, for I had not supposed such local expression of mercury possible after so long lying dormant. But if the diagnosis was startling, the prognosis was still more so, for he advised the patient by no means to have the remaining teeth removed, as in case she did so the disease now locally expressed, might and probably would, be transfered to some internal organ with grave constitutional effects. I have no comment to make upon this, to me, new and very extraordinary diagnosis and prognosis of a disease which we as dentists have been taught to look upon not of mercurial origin, and as involving no such grave consequences as have been here fore-shadowed, and only have to say that if it be true, the sooner we stop the administration of mercury to children the better.

Dr. Thackston. I do not think this disease is of mercurial origin. It is barely possible that the mercury may have tended to induce it, but not to produce it, or to involve the grave consequences here stated.

The Association now proceeded to the election of officers for the ensuing year, with the following result:

President.—Dr. W. W. H. Thackston, of Farmville, Va.

First Vice President.—Dr. J. Hall Moore, of Richmond,

Second Vice President.—Dr. S. H. Henkel, of Staunton, Va.

Third Vice President.—Dr. Geo. B. Steele, of Richmond.

Treasurer.—Dr. James F. Thompson, of Fredericksburg, Va.

Recorning Secretary.—Dr. Geo. F. Keesee, of Richmond, Va.

Corresponding Secretary.—Dr. Jno. Scribner, of Charlottesville, Va.

Reporting Secretary.—Dr. H. M. Grant of Abington, Va.

Executive Committee.—Drs. L. M. Cowardin and Jeter of Richmond, and Dr. Frank Harris, of Harrisonburg, Va.

The President announced that the business of the Association had been accomplished, and it was now ready to adjourn.

Prof. Hodgkin.—Before this Association adjourns, Mr. President, may I be allowed to say a few words more to you, whom I feel to be my brethren, not only in the fact that we are laboring in a common cause, but because I too claim my Virginia birth-right. Were I a native of any other state, I should feel, as I part from you to-night, that I would not be doing my duty if I failed to say that I thank you for your cordial reception of me here, for your respectful attention to the views I have presented, and for the kind hospitality of your homes. But, we "who are to the manor born" know that Virginians don't know any better, sir, than to treat their visitors as you have treated me, and so I make no further mention of it, save to say that I appreciate it. I said just now that I too am a Virginian and if I ask you who are so freely with us in this work of healing, your support in the specialty to which I have been called, that of teaching,—I feel sure that I shall not ask vainly. It may seem a slight thing in me to say that I need all the encouragement and moral support I can get from you in whose ranks I so lately stood as a co-worker, but I declare to you that so heavy does the responsibility weigh upon me, that I feel sometimes like running away from it. To feel that the responsibility is on me of training the minds of young men who are to take the place of men like you sir, is no light thing, and I ask the sympathy and cordial support of you my brethren in this work. But may I ask you also one thing more. In sending us students, as you will from time to time, send such as will reflect credit on your judgment in selecting, and care in teaching, and who will honor the institution of which most of you are alumni.

It will interest you all I am sure, to know that there will be a general meeting of the Alumni of the Baltimore College of Dental Surgery, during the commencement week, on the eighth of March next, to which in the name of the Faculty I cordially invite you.

The Association then at 8-30 P. M. adjourned to meet in Richmond, in December, 1876.

ARTICLE II.

Address.

BY W. W. H. THACKSTON, M. D., D. D. S.

Delivered before the Virginia State Dental Association.

Gentlemen of the Virginia Association of Dental Surgeons:

Again it is our duty and privilege to utter our anniversary greetings and salutations; to bid you once more welcome to these Halls, and to the rich banquet in which you ll will participate, and to which you all may contribute.

We open our heart and stretch out our arms, that we may gather you in and enfold you all in the bonds of professional unity and brotherhood, with the hope and trust that, forgetting or laying aside all professional jealousies and estrangements, all the petty grievances and annoyances that disturb the harmony and ripple the currents of professional life, we will here meet on consecrated ground, an around our altars brighten the links and strengthen the cords of fraternal union and brotherly sympathy.

We do not mean that we expect you all to think alike upon every subject that may engage our attention as dental surgeons, to hold the same convictions, to cherish the same doctrines, or adopt the same modes of practice in all given cases; that would be unreasonable and undesirable. Unreasonable, because men are so constituted as to see the same object in different lights, to receive varying impressions from the same causes, and to adopt diverse and sometimes opposite methods of reaching the same result. Undesirable, because all interest would be abated, and all progress retarded or arrested, were thought and action confined to grooves and circles, and one monotonous treadmill path bind and circumscribe our professional efforts and activities.

In a certain sense we expect, nay more, we desire that you should differ and disagree, that you may the more earnestly and thoroughly discuss and investigate unsettled questions, more carefully compare observations, authorities and opinions, and more closely and satisfactorily solve the problems that claim our consideration as members of an important and advancing profession.

Out of such differences and disagreements will be evolved the power and stimulus to additional progress and higher improvement; our energies will be aroused and our steps quickened in that advance, which is now the watch-word and rallying cry in every department of science.

But above and around all that is variant in sentiment and opinion, as to theories or points of practice, as to alleged improvements or important discoveries, we would hang the mantle of brotherly association and personal friendship. However our interests may antagonize and conflict in the broad arena of professional life; here at least, they are identical and in full accord; and if we have grievances that we remember, or resentments that we have cherished, let us generously and magnanimously lay them all upon our common altar, for our individual and for the general good; and striking hands and standing shoulder to shoulder, let us move in concert and in harmony to the great work of advancing the division of science we assume to represent; and which challenges our most earnest efforts for its culture and development.

There appears, gentlemen, at present, a most singular misapprehension, and in some quarters, a most painful uncertainty as to the status and relations of dental surgery as a profession; and in the minds of some of the contributors and managers of our journalism, most unsettled and conflicting sentiments and convictions in regard to our educational resources and facilities If we are to receive some of the utterances of our *Journals* as indices of public opinion, it would seem that it is yet an open question whether dental surgery is a business, a trade, an art or a profession, and whether after the splendid results of a forty years experiment, we should not now abandon our distinctive educational system—suppress our schools and colleges and attach ourselves to the purely medical institutions of the country. Whether we should not surrender our college degree as a "badge of partial culture," and look to the medical schools as the source of instruction—the fountains of honor and dignity, and to the M. D. as the "badge" of thorough and complete culture and qualification for our offices and duties, and as "dentists of the period."

We have thought, that perhaps we could not better improve the present hour and occasion, than by submitting a few observations and reflections upon these two propositions. We wish you, gentlemen, to know where you stand, what plane and position you occupy, and by what tenure you hold social and public recognition as members of a liberal profession. We wish also, to avert a calamity which may threaten, if it does not already impend, for we really and sincerely believe, that any radical change in our present educational system, would be fraught with the most deplorable consequences, both to ourselves as dentists and to society at large.

But first, are we a professional body? or do we simply comprise an association of artizans, mechanics and tradesmen? The resolution of the "American Medical Association," declining to admit as members of that body dentists *as dentists*, together with the flippant and vulgar criticism of one or two medical journals, stigmatizing our college degree as a badge of "partial culture," has not only disturbed the equanimity, but shaken the judgment of some of our ambitious and aspiring brethren, and they appear to stand ready to make any concession, to submit to any "snubbing," and to embrace any expedient, however disastrous and humiliating, that may secure recognition and bring them into acknowledged affilliation with the medical profession and its organized societies.

Now, gentlemen, in the outset we have to observe that we yield to none in a proper and becoming respect and admiration for medicine as a science—as an elevated and honorable profession, and as a necessary and benevolent pursuit. We cherish the highest veneration for the good and the great men who have illustrated, and who are now illustrating the annals of medicine by their skill, their talents, their learning and their benefactions; and we regard with indescribable interest and satisfaction, the research, the advances, and the improvements that distinguish the present era in medical progress and history. But while cheerfully admitting and according all that can be justly and fairly claimed for the profession of medicine, we submit and maintain that dental surgery, a closely allied but distinct science and pursuit, has now all the elements and resources of an independent, self-sustaining and progressive liberal profession.

We have an educational system which we shall presently attempt to discuss; we have standard text-books; incorporated and successfully conducted schools and colleges, and a journalism and literature, respectable, creditable and available for all our present wants and needs. We are yearly recruiting and reinforcing our ranks with a better and more cultivated class of men, and many of our veterans are gathering laurels and achieving distinction and world-wide reputations from their investigations, researches and improvements; and however much it might tickle the fancy of some of our brethren, to be received and acknowledged as members of the "American" or some other medical association, and however much it might pander to the vanity and egotism of the small men amongst our medical confreres, to play condescending patron to the dentist; we confess ourselves unable to perceive that either dental surgery, or medicine, as sciences and professions would be particularly or specially benefited by the alliance or combination.

We submit, that dental surgery can now afford to stand upon its present record, to assert its own claims to consideration, and to challenge the confidence and respect of society, and of all other professions, medicine included; and we further submit, that this is the only position that will command the respect and consideration which an elevated profession can confer, and which an elevated profession can afford to accept.

But we are told that we are not recognized as qualified delegates and members of the medical societies, and our college degree, our "D. D. S," is regarded as a badge of "partial culture," a symbol of individual and professional inferiority and subordination." What is to be done? exclaim some of our dissatisfied and ambitious brethren; "had'nt we better change our educational system, and abolish our own colleges? had'nt we better drop the college degree and hide it away from public view, and all become M. D. dentists? thus bridging the fearful chasm between dental surgery and medicine." Now let me ask of what consequence or concern to us, is the action of the

American Medical Association? For reasons satisfactory to that body, it has declined to receive dentists, and the representatives of our colleges as members—for similar or for other reasons, we may refuse physicians and the representatives of medical schools, membership in our conventions and associations; and we could do so upon established precedents, without a violation of the amenities and proprieties that distinguish professional intercourse. We do not regard it as a strained analogy when we direct attention to our various church organizations; no Protestant has less respect for himself and his own church, because the Catholic will not permit him to sit in his councils, and no Episcopalian feels himself degraded or dishonored, because his Jewish neighbor refuses him a high seat in the synagogue or the sanhedrim; and why should a dentist of common sense or ordinary intelligence feel himself humiliated and his profession abased, because the doors of the medical societies are not thrown wide open to all who may wear the title of "doctor." We apprehend that the doctors of divinity, of law, and of philosophy, would be regarded quite as ineligible to membership in the medical associations as are the dentists, but we should confess to an amazement we have no language to express, were they to place themselves in the unenviable and ridiculous attitude assumed by some of our self constituted leaders.

But some coxcomb of an editor, some conceited puppyish journalist, has disparaged our college degree, has sneered at it "as a badge of partial culture," and straightway some of our dentists and journalists, go into hysterical spasms—and as a "sop to Cerberus," as a propitiatory offering to the gods of medicine, (for there are a great many of them now-a-days, and *æsculapius* is nowhere,) propose to recast and remodel the whole machinery of dental education, and dental practice and usage, to separate operative and artificial dentistry as incompatible, and to divorce from both what is styled "par excellence," and just the thing: "Oral Surgery" and "Oral Medicine."

True professional progress demands no abandonment of principle, no sacrifice of manly self-respect; and if ever recognized at all we apprehend the "oral surgeons" and "oral physicians" would be given back seats in the medical associations, would soon be glad to drop their new born title, and rejoice to be again acknowledged as respectable dentists.

Our college degree "a badge of partial culture;" partial culture for what? for medicine, for law, for divinity? We admit it our colleges do not propose to educate or confer degrees upon physicians, lawyers or preachers. Partial culture for dental surgery! Then we denounce the assertion and the sneer as false and stupid, and altogether worthy the source in which it had its origin.

Our schools and colleges have only undertaken to cultivate, to teach, and to prepare students for the practice of "dental surgery;" and the degree conferred by those schools can in no just or true sense be called a "badge of partial culture," any more than the M. D., the D. D., or the L. L. D.

For the consolation of our dissatisfied and aspiring dentists, it may be justly said, that each and all of these several degrees, are "badges of only partial culture." The M. D. is taught nothing of dental surgery, and the D. D. nothing of law or medicine, so that these degrees as symbols or badges stand exactly upon the same plane; they are evidences of a given or supposed extent of culture and attainment in each of the several departments of general science, and express and imply no special acquaintance with any department or profession outside the specialties they represent, and must all be regarded as "badges" of a fractional culture in the sum of human learning.

Your degree of "doctor of dental surgery," represents the same value, the same honor, and the same dignity in your profession that M. D. does in medicine, no less and no more, and if you will accept as of any value, the expeence of one who received the third diploma ever issued by a college of dental surgery to a regular graduate, and who has worn this so-called "badge of partial culture," throughout his professional life, it is this,—if you will honor that badge, if you will wear it bright and unstained; it will never degrade or dishonor you or disqualify you as the associate or peer of any man bearing any other badge or symbol, be it M. D., Ph. P., D. D. or L. L. D.

Dental surgery embodies by its legal and social recognition, its schools and colleges, its special literature, its standard text books and journalism, its associations and conventions, all the conditions and requirements of a learned and liberal profession, and as such, has a legal and unquestioned right and privilege, to dispense its distinguishing honors, and confer its special degrees.

Dental surgery ceased to be an art and a trade when the "Baltimore College" was incorporated, and the "American Society of Dental Surgeons" was organized and put in operation; just as medicine and general surgery ceased to be arts and trades, when the celebrated incorporation of "Barber Surgeons of the city of London" was dissolved and was succeeded by the incorporation and establishment of the present "Royal Society of England."

TO BE CONTINUED.

ARTICLE III.

American Academy of Dental Surgery.

Regular Meeting, held November 16th, 1875.

The American Academy of Dental Surgery held its regular meeting on the evening of November 16th, Dr. Geo. H. Perine, President, in the chair. After the usual preliminary business had been attended to, Prof. Frank H. Hamilton, M. D., of New York, made an address upon "The subject of Dentistry." He said:

Gentlemen, when, in response to Dr. Perine's polite note, I accepted his invitation to meet you this evening, and to make some remarks, I supposed the meeting to be social and informal; and I was a good deal surprised to see it announced that I would "address" the Academy. Excuse me gentlemen, but the few remarks that I shall make, will be better characterized as a familiar "talk"—certainly they will not rise to the dignity of an "address."

As to the importance of dentistry—the profession you have chosen—there can be no difference of opinion. In a sanitary and æsthetic point of view, it holds a high rank. Good teeth are essential to health, and equally essential to the beauty and harmony of the human face; and perhaps the best evidence that we can have that the world in general, and Americans in particular, hold the same opinion, may be found in the fact, that you are so well patronized and so liberally paid. I do not think you are overpaid, for your duties are delicate and laborious; but then every one is not paid all he fairly earns.

I have not myself employed dentists often; but, as to that matter, I have seldom employed a doctor, although I have been educated to have a good deal of respect for doctors. The fact is gentlemen, I, in common with other surgeons, claim to be in some sense a dentist or dental surgeon, and in my "treatise on surgery," I have devoted a chapter to this subject. We are very closely related by *blood*, and we must naturally respect each other.

What I think we may discuss profitable is, *the qualifications which ought to be required of those who practice dentistry;* and that will depend entirely upon what dentistry or dental surgery, as you prefer to call it, and very properly, means. Most other specialties define themselves, and tell us with some precision what region or anatomical part they intend to occupy; but dentistry as a science, is new, and its limits do not seem to be yet accurately defined.

When I began to practice medicine and surgery, I had the whole field to myself. Like Robinson Crusoe, I owned the whole island. There were then no specialists worth speaking of. There were a few spine doctors, and cancer doctors and purely mechanical dentists, and that was about all. But since then, one after another, men with carpet bags in their hands and rifles on their shoulders, have come in, driven their stakes, and set up their claims. Without asking a question or saying "by your leave," they have taken possession of the eye, the ear, the jaws both upper and lower—the throat, the lungs, the heart, the kidneys, the bladder, the uterus, the rectum, the nerves, the joints of crooked backs, crooked legs, and crooked feet, until what was once only known as the physician and surgeon's territory, has been pretty much all taken up by squatters; and the original proprietors, who hunted and dug whereever they chose, over the whole ground, but drove no stakes, find themselves dispossessed. No one has yet driven a stake into the nose, or the spleen, or the large and small intestines. The liver, also, is for the present unoccupied; but this is probably because it was thoroughly worked some years ago, and it was found not to pay, so it was abandoned. Possibly also, there may be something in a name, and men may not like to be called "billions" doctors, or "splenetic" doctors.

I will not discuss how much good or harm comes of this sub-division of labor. Doubtless some good and doubtless some harm. The specialist sees farther and more distinctly in a line straight before his eyes, or through his own telescope, than anyone else; but he is in danger of not seeing anything outside of the narrow cylinder through which he is looking. He sees, and perhaps very much magnified, the pustule in the ear, or the granulation upon the ostincæ, but he fails often to see the general dyscrasy, the great constitutional fault and perturbation, upon which these insignificant affairs depend. Notwithstanding all the good they have done in the world, this is one of their admitted dangers and defects; but specialists exist, (it is well for surgery that they do exist,) and this is the fact with which we have to deal.

Now as to the qualifications which ought to be demanded of dentists, that will depend upon what they undertake to do, or as I have said before, upon how you define dental surgery.

If the dentist practices merely the extraction of teeth—the filling of teeth, and the making and setting of teeth, why then he needs very little more than a mechanical training; but if he proposes to treat all the diseases and accidents to which the buccal cavity is liable, including the teeth and diseases and accidents of the jaws, then he needs as a foundation, a thorough knowledge of medicine and of surgery, including of course, the collateral sciences, anatomy, physiology pathology, &c. In other words, dental surgery is then but an outgrowth from general surgery and medicine—a mere branch, receiving its supplies from the common trunk—a craft if you please, but which by special care and attention, is made to bear more perfect fruit than the parent stock.

This is not requiring too much, since it is impossible to separate the diseases of a part of the body from the whole. It is no more than is required of the oculist, and aurist and of every other medical or surgical specialist. They are all required before they can be recognized as "regulars," to possess themselves of that amount of knowledge which is, or ought to be implied by the degree of Doctor in Medicine. This is the standard to which dental colleges must attain in their course of instructions, to entitle their graduates to be recognized by their sister professions, unless they intend them to practice exclusively, or almost exclusively mechanical dentistry.

While we welcome heartily all well qualified specialists, we are exceedingly jealous of our rights as against those who attempt to practice any branch of surgery without the proper qualifications. We regard them as intruders, and as dangerous pretenders.

If each of us, (for these remarks apply as much to myself as to you,) if all of us limit ourselves in our efforts to treat disease, and to practice surgery, to what we thoroughly understand, we shall do our duty, and do the most good in the world.

I do not understand that you entertain any different opinions. On the contrary, dentists have always in their conversations with me, deprecated the introduction of imperfectly qualified men. They have always held that those who profess to practice surgery in connection with mechanical dentistry, should do it only under the right conferred by the degree of Doctor in Medicine, or the degree of a dental college whose standard was equivalent to that of a regular medical college. Nor will it do to attempt to evade this just requisition, by accepting of an honorary degree, conferred without an examination, or any pretense of a proper course of studies.

These I understand, are your opinions; but the difficulty is in keeping out improper men, or in preventing those admitted solely as mechanical dentists, from assuming other and wholly incompatible functions.

I appreciate your difficulty, and do not intend to make any criticism upon your conduct as a profession. Indeed it would be very unbecoming in me to do so, since I am well aware that there are a great many incompetent men in my own profession; and they continue to come in. Any one who has stood at the door as long as I have, authorized to give tickets of admission, knows how difficult it is, when the crowd and the rush are so great, to keep out improper applicants. No doubt if we had a sufficient number of stout men at the various entrances, and the gates were always kept partly closed, so that only one man could enter at a time and we could have a good look at him as he was passing in, we might do better; but experience proves that it is not easy to find a sufficient number of stout men, able and willing to do this duty.

Gentlemen—let me say before I sit down, that as a profession, you have made within the last twenty-five years, most wonderful progress; and especially is this true of American dental surgeons. The world concedes this, and I shall not be accused of any attempt to stretch the wings of the American eagle by saying so. It seems entirely safe, therefore, to entrust the future of this science and art in your hands. Whether I am to call you children or brethren, or cousins, or whatever may be our relationship, I am proud of the connection and shall feel honored by your friendship.

Dr. J. R. Gober said that Dr. Hamilton's ideas agreed with his exactly as to what the dental profession ought to do. If they were dental surgeons, they belonged to a branch of the medical profession. The door into the medical profession was now open, and they had only to walk in, but, in order to walk in, they must qualify themselves to go in. He thought it was impossible to separate the two professions. There are so many diseases that only a dental surgeon could properly treat, that they could not limit their work to singly extracting and filling teeth and working artificial sets.

Dr. J. J. Ketchum, New York, said he had been very much interested in the paper of Prof. Hamilton. The question of dental qualifications had two sides, as well as every other question. The physician was at sea when he reached the mouth, and dealt with the teeth. He was then unable through any advantages which he could get from his text books, to differentiate in his diagnosis between affections that might be entirely different in themselves and might require different treatment. There was the other side of the question, too, and that was that the dental surgeon was called upon to differentiate none the less than the physician or surgeon; and in order to do that, he had not only to know the worth, but the whole system at large. A man could not possibly deal with a pathological condition unless he first had anatomy and physiology, and then pathology, before him. He must grasp the whole field before he could take in a part. The man who went into the profession of dentistry, and looked at these matters exclusively from the mechanical point of view, was not fit to deal with these pathological conditions; because there were some operations that the dentist had to do that required the nicest tact—over genius, to carry out. Dentists should begin at the bottom, and have their anatomy and physiology, and upon that broad basis of scientific information they should build up their pathology. Their profession was a high one; it certainly ranked as a specialty in medicine.

Dr. John Allen said the dentists were indebted to the medical profession for the progress they had made. What was their condition forty years ago? They had no dental literature, no dental associations, no dental colleges, nothing upon which they could base their claims upon the medical profession. Now all this was changed; the medical profession had yielded up to them that branch of their profession connected with dentistry, showing that they had entire confidence in the ability of the dentists to deal with it. The dental profession was based upon the medical profession. They depended upon the medical profession, and they ought to acknowledge that dependence. Where would they be without pathology, physiology and anatomy? The medical profession had done for the dentists far more than the dentists had done for them, and therefore dentists ought to be modest in pressing their claims upon them for consideration.

Dr. Geo. H. Perine said he had never felt more proud of his profession than he did at the present time, when he looked back over twenty-five years and thought of the "toil and trouble" with which they had built themselves up to their present position,—recognized as they now are as specialists in medicine.

A paper was then read on "Association," by Dr. G. A. Mills, Hartford, Ct., in which the Doctor urged the desirability in many operations, of a union of tin with gold.

Dr. A. P. Merrill, in the discussion that followed the paper, said he would like to add his testimony in favor of tin foil. He had used it in many instances, and always in combination with gold. He once used it in combination with gold from the force of circumstances. In 1863, when practising in South America, a long distance from any dental depot, he happened to get nearly out of gold, but had plenty of tin foil. A young lady, of an aristocratic family, was to be married, was to go some distance into the interior after the ceremony, and he was requested to put her teeth in a good condition. He said he did not have the proper material to fill her teeth with, but he was told to do the best he could. He accordingly filled the cavities with tin nearly to the surface, and filled the balance with gold.

About a year ago, a dentist, a South American friend of his, visited him, and, among other things, spoke of the case, and said the lady had never felt any ill effects from the filling. Since then he had performed a few similar operations, and had no reason to doubt that in many cases tin and gold could be used together with great advantage.

Dr. F. H. Burrows said his reminiscences of the practice of dentistry went back a great many years, and his earliest remembrances were of tin being used with great advantage. He could trace through the whole course of his practice, tin fillings which had been put in the earlier days of dentistry. Once in a while he would come across a tin filling covered with gold, which somebody had excavated, and said, "What a cheat!" But perhaps dentists then did not have the same aim in using tin that they now have.

There had been wonderful strides made in the profession. When they commenced, in 1830, they were hewers of wood and drawers of water. If a step was made in advance, those who knew of it would say to each other, "Hush! keep it quiet! don't let others know it, by any manner of means!" They used, for instance, split pins for clamps, and ordinary chalk instead of Plaster of Paris. The younger members had made great improvements. In the early days dentists had nobody to teach them, and had to depend upon themselves. He had his fingers croched many a time in carving old sea horse, and he had carved a tooth from the handle of a tooth brush.

With reference to tin combined with gold, he thought that Dr. Mills had struck the right vein. But tin was not the only metal that had been so combined with gold. One man who had been a dentist for over forty years, thought he had made a valuable discovery in regard to exposed nerves, when he put pure lead over the nerve, and filled up with gold. Now instead of oxychloride of zinc, for the same purpose, Dr. Mills was using tin. He had used tin himself in the case of an old physician, and the patient finally died with the tooth in his mouth. [Laughter.] He believed in anything that would prevent the sense of shock, which was very great in the application of gold fillings, as they were used at the present day. He knew there was not a great deal of respect for tin current; but there was nothing like having plenty of American tin, if one had it in the right spot. [Laughter.]

Dr. A. Johnson said that while he had no doubt that tin and gold could be sometimes used together very well, yet he failed to see any great advantage in the union. Tin would not work as readily as would the gold alone. They had other substances which were better non-conductors than tin to put over the sensitive part of the tooth, and which could be more easily manipulated, and better adapted to the tooth. He did not mean to disparage tin, but he preferred to use something else. For temporary teeth, he preferred to use gutta-percha or Hill's stopping. As to amalgam, there were cases where it could be used. When the tooth was very far gone, he then preferred to use amalgam, Hill's stopping or oxy-chloride. But he never said that they were as good as gold. He had an old friend whose teeth had been destroyed, without doubt, by amalgam. He had seen gold fillings that had stood in the mouth longer than any amalgam to his knowledge. He had lately seen a right central incisor that had been filled on its upper surface with gold, forty-one years before, and the filling was as good as it was on the day it was put in.

Dr. Geo. H. Perine said that while they all knew the value of association, he, for one, was not prepared to recognize any decided advantage to be gained by the association of tin with gold. At the same time, he comprehended the value of tin as a stopping; and he would say nothing against either tin or amalgam unless they were poor. Under certain conditions, with certain classes of teeth, tin could be used with great advantage. As a temporary stopping, in certain cases, there was no material equal to it. But when it was associated with gold, he could not see any advantages which the union could give rise to.

The next and last paper was entitled "Mechanical Abrasion of the Anterior Teeth," by Dr. E. L. Hunter, Enfield, North Carolina, in which cases the Doctor advocated the use of a frame with the coin foil for building up the tooth.

Dr. A. P. Merrill said that if he understood the paper rightly, Dr. Hunter's method was to use gold coin with the foil. He thought in cases where the tooth was built up from the root, and where there was a sufficient hold to groove, that, by properly grooving, operations could be performed that would wear as long as so much solid gold. He had a case of the kind in wear since 1864. In another case, where there were four central incisors filled, (where most of the molar and bicuspid teeth had been extracted, while those remaining were accluded,) he had had them in wear since 1869, four gold crowns which he had built up from the margin of the gum, giving them their proper shape.

Dr. A. McCollom said he had a case in point. He had filled a central incisor, in the way Dr. Merrill referred to, eight or nine years back, and it was now doing service. He was afraid that Dr. Hunter did not use the automatic mallet, and work the gold enough. If the gold was thoroughly condensed, he would guarantee it to last as long as American coin.

Dr. J. R. Gober said that Dr. Hunter displayed in his paper very nice mechanical skill; but he thought that the Doctor's method did not pay. It complicated the operation very much, and he had yet to see a properly condensed filling wear away any faster than gold plates wear away in the mouth. He had a case of a left central incisor, the crown one half gone an approximal cavity above the free margin of the gum—pulp alive, filled four years ago with No. 4 soft foil annealed, and condensed with an eight ounce mallet in the hands of a good assistant; and that filling was there to day as good as when first put in.

After some further discussion, the meeting adjourned.

ARTICLE IV.

On Filling Teeth.

BY GEO. H. PERINE, D, D. S., NEW YORK.

In considering and investigating subjects within the province of the student or practitioner in dental science, there will perhaps, be found none other which possesses to the same degree, the general importance and magnitude as an interest which characterize that of *filling teeth.*

And this is because of the constant presentation in practice of cases in this branch of dentistry, and therefore of the wide spread range of-dental surgery precisely in this direction; and while among many, the mere mechanical operation of filling teeth, is considered as one of the lesser branches of the science, this theory is at once flatly contradicted by the fact that no other topic in dental surgery has received so much or so exhaustive treatment in the way of writing and of oral teaching as well.

And yet although so much has been said upon the subject, and so well, I do not believe the topic is by any means exhausted. In fact, while humanity exists, and there thus remain teeth to be filled, if we may be guided by experience in the past in all science, we may properly believe that improvements in practice will constantly occur, that new and valuable and pertinent inventions will be made, and that our general knowledge of the subject in all its ramifications will grow with our growth.

It may not therefore be considered improper for me to endeavor in my turn to add some little to the aggregate wisdom of our profession in this matter, and thus naturally add to the comfort and health of those whom we are educated and skilled to serve. I therefore propose to lay before your readers an improved process or method in this department of dentistry. And in so doing, I desire to say that I do not thus venture upon professional publicity, without having concentrated for a length of time my thoughts upon the subject in question, nor without having established in so far as experiment will establish anything, the accuracy and justice of my preconceived views upon this subject. Now I may premise the following proposition, to wit:

That in the practice of the profession, it will possibly be found in a very large number of fillings, in a certain class of cases, and in certain temperaments and certain patients, that even the most carefully prepared and adjusted fillings do not stand the test of time.

So much depends upon conditions having no relation to the case and precision of the operator, that to obviate the influence of these conditions when deleterious; should be the first consideration in such practice.

But precisely how to do this has been, I imagine the stumbling-block in this class of dental operations, and this is the reason why many fillings have not possessed more of a permanent character. In cases of the teeth of young persons, and always in that of teeth possessing more than the ordinary sensibility, and when their vitality is endangered, some change in the customary mode of operation seems needed.

It is generally admitted that much injury is occasioned by thermal changes operating through the employment of mental fillings, approximating to the pulp. To obviate this difficulty, many experiments have been tried, and new theories revised, but thus far in my knowledge without success.

As regard the details of such cases, I have only to remark that such teeth are too often filled with amalgam; gutta-percha and os-artificial being in my judgment, a better material to employ, provided that the masticating or other external surface can be protected from friction.

Many operators treat such cases by underlaying with plastic filling, and building up with gold foil. But in general practice the operation is protracted and tedious, thus wearing upon the nervous system of the patient, and producing results (frequently) which are in the highest degree objectionable. I propose by my method to obviate these disagreeable features.

I undertake to make an operation which shall be perfect in its result, while possessing none of the painful, annoying, or injurious characteristics of the customary building up process—an operation in fact, whose quality when completed, no dentist can justly question. It should be borne in mind however, that while my method is greatly simplified, this fact should not induce any carelessness on the part of the operator, in the matter of giving due protection from the action of the fluids of the mouth, while the operation is in progress; and also, that no point in the proper preparation of the tooth for the filling should be slighted.

I may remark here that where the operator is met by a case of sensitive dentine, he may properly make use where it can be safely employed, (avoiding contact with other than the tooth to be operated upon,) the cautery battery, in preference to resorting to powerful medical applications.

The method which I offer to the profession, is used in connection with a plastic, non-conducting material, applied as heretofore observed and with proper care, and for this purpose, I would recommend Hill's stopping or os-tificial.

Having proceeded in this manner, I protect the plastic stopping with a perfectly fitted cap of gold plate. In explanation of this method, I will state that in preparing the tooth for filling, I employ an instrument sufficiently large to reach the healthy part of the tooth surrounding the cavity to be filled; with the instrument, (Fig. 1.) I form a perfectly circular cavity, taking care not to approach too near the lining pulp or nerve.

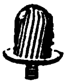


Fig. 1.

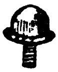


Fig. 2.

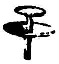


Fig. 3.

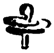


Fig. 7.

The instruments illustrated in Fig. 1, 2, may be used on either of the dental engines.

After the cavity is properly prepared for the reception of the stopping, with the second instrument, (Fig. 2,) I cut around the edge of the cavity on the external surface of the tooth, a groove or gutter, in which to set the gold cap. (Fig. 3.) These caps are made of different sizes, of a cup like form, and should always be used of a size corresponding with the instrument employed in making the groove or gutter. (Fig. 2.)

On the under side of the gold cap, (Fig. 3.,) are hooked, pointed or staple-shaped wires, which sink into the plastic stopping with which the cavity has been filled, and thus serve to anchor the cap ready for finishing whenever the material has hardened—as in os-artificial, or cooled as in Hill's stopping.

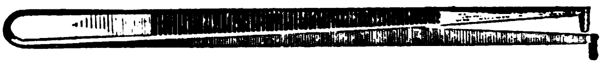
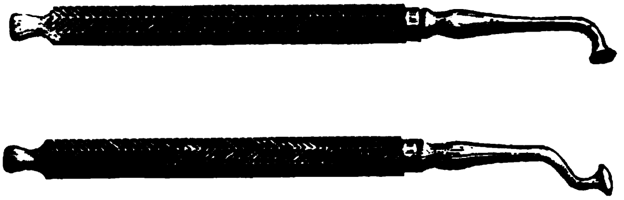


Figure 4.

If Hill's stopping be used, the cap must be warmed before being applied, by means of the instrument, (Fig. 4.,) by which it is first carried to its place, then with instrument (Fig. 5 and 6,) by gentle pressure the cap is pressed home, causing the border of the cap to spread into the gutter or groove. It will be found that the proper adjustment of the cap in place, depends upon the force used in pressing it home upon the plastic stopping. It will also be observed, that the pressure will force the surplus material out under the edges of the cap, and thus on hardening or cooling, will complete the union between the cap and stopping; of course the force necessary must be applied with great care and judgment. The instruments with which this part of the operation is performed is illustrated in Figs. 5 and 6, being larger than the external cavity, rests as it is pressed home, upon the surrounding edge, and thus the centre of the cap is prevented from being forced too far into the cavity, the result of which would be the lifting of the border of the cap from the groove or gutter, before the material had set.



Figures 5. and 6.

The gold caps are manufactured in various sizes, to obviate the necessity of using such as would be larger or smaller than the nature of the case required—Fig. 7 illustrates a gold cap with flange border. After it has been placed in position—a rope of gold foil may be packed in and around the border of the cap, and afterwards burnished down. Where the surface upon which the cap is fitted, is irregular, the cap and gold foil may be burnished down to fit into the inequalities, rather than use the file to remove them.

Caps made of mother pearl, may be used in the same manner as the gold caps, in such cases as may render the use of the latter offensive to the eye or otherwise objectionable.

These caps are similar in their construction to those of the gold, with the exception, that in the place of the points, hooks, or staples, by which the latter attaches firmly to the plastic stopping, we have dovetailed projections which fulfill the same object.

I claim for this new method of filling teeth with the appliances and instruments which I have described, that a more satisfactory, certain and permanent operation may be performed in certain cases, than by the ordinary method at present adopted.

I am of the opinion that the profession will meet with a large number of cases in their practice, in which this method may be adopted, with advantage to themselves and to their patients. And furthermore, I believe that a greater number of teeth will be saved, and for a longer period by this mode of practice. And finally, that in this way great *diesderatum*, will be obtained, and the wholesale use of amalgam be avoided.

I desire it to be understood I do not claim that this method will be found practicable or desirable in all cases of filling teeth. But I do claim that it will be found applicable to very many cases, and that in those instances its advantages will be manifold and important.

EDITORIAL, ETC.

N. Y. Press Association, Feb. 20th, 1876.

Editor American Journal of Dental Science:

Dear Sir—

In the December issue of the American Journal of Dental Science, among your editorials, you published a reply of an apparently much abused person—denying the facts stated by me in an article in the "*New York Evening Express*," of August 12th, 1875, entitled, "Dentists to the Front," and from which you transcribed and published in your Journal of the September issue. This person claims that the article was an anonymous communication. When to the contrary, the writer was the accredited Long Branch correspondent for the paper in question, as well as agent for a Press Association, writing over the *nom-de plume* of "Wandering Willie," a *nom* known to every literary person of the present day, and to which, as yet no shame or lack of fairness has ever been attached.

I simply published the article referred to as a "News Monger." I was not "seen" nor persuaded by any person or persons to dim the lustre of the character of the corteous and gentlemanly chairman of the Executive Committee. The facts of the case are these: I was invited to attend the sessions at the Ocean Hotel, being a boarder at the hotel at that time. The best of feeling seemed to prevail among all the profession in the morning of the first day. As I went into the room where the convention met in congress, I noticed that the room was draped in deep mourning. I asked for whom, and was informed for their late Vice-President of the convention. Everything went lovely, until some member arose, and from what I now can recall to memory, I think he called for the drawing up of a set of resolutions in respect to their dead fellow and officer—

his motion was seconded, etc., but it was not entertained,—I saw some angry looks, but paid no attention, and not until recess did I become aware of the true facts of the case As the members of the Academy went from the session room, they were greeted with the "Extra News!" full account of the convention! all the speeches! from a newsboy—and purchasing a copy, they found a full and verbatim report of the speech which was not over five minutes finished. Now this enterprise of a journal would not surprise one in the metropolis, but for this little sheet with its two compositors and hand press, astonished us New York Bohemians. It was now that the growls began, and it was now for the first time that the dental gentlemen and "The Wanderer," was thrown some light. Why—honor and respect was not accorded the memory of the dead Vice-President and those gentleman who offered the "memoir." It was plain to be seen that a "slate" had been made, and somebody was afraid it would be broken. It was calculated (this is what I heard by eaves-dropping on the balcony of the hotel,) by somebody that his speech would be finished by a certain time. So the *Local* was bought by an exchange. The speech handed early in the morning long before the convention convened, and every thing fixed that the paper contained that speech in full, would be on the bluff at the hotels a half an hour after the close of its delivery in session. Now should these resolutions of "Memoir,' to the deceased fellow be entertained, over one hour would have been taken up, and a speech never spoken would be dished out to us at five pence a piece; this would'nt do, and this is the secret of the publication of that article. I saw there was a clique, and I sharpened my quill and went for them, for I hate rings. I was interviewed by the much abused gentleman, and I informed him that I could not gratify his wish to publish a denial, but that I would publish his denial, or that I would pay no attention, should he deny the charge, providing he would not libel me. I have letters from him in which he offers me a recompense should I publish a denial of the facts; and in these letters this person—frames for me—informs me what to say, how to word it, (the denial) and the excuses to make for my not denying it ere this; and should any more controversy arise from this, I will feel it my bounden duty to tell all I know, and publish all letters I have from that person. It was not until I was in the remote wilds of the far west that this person attacked me in your journal, and he never thought I would see it. I did not return until lately.

Very truly yours,
"WILL J. KELLETT," "*Wandering Willie,*"
84 Carleton Ave., Brooklyn.

To the Dental Profession.—The American Academy of Dental Science, Boston, Mass., design presenting to the profession and the public, at the approaching Centennial, a view of American Dentistry,—past and present. One of the characteristics of this presentation will be a history of the profession in this country, particularly for the past one hundred years. This work being designed to become a standard of reference, will be comprehensive and complete in detail.

To the end that this desirable result may be attained, the committee in charge respectfully request the aid of all dentists, (and others,) in furnishing information of every kind necessary to the work.

Below will be found a list designed to afford a general idea of the kinds of information needed, and on these and kindred subjects, and indeed on any subject connected with the profession—nothing will be regarded as too small or insignificant to be of value.

If desired, any material received, will be carefully preserved, and returned to the sender after use. To facilitate this, as well as ensure credit being properly given, everything should be marked with the name and address of the sender.

List of Subjects.—Biography. Literature. Societies. Colleges. Individuals. Mechanical and Operative Dentistry. Discoveries in any branch of the profession. Materia Medica. Prominent events (with dates.) Prominent Questions. Inventions. Patents. Anecdotes. Sayings. Historical Facts. Obituaries. Addresses. Papers. Published and unpublished works, etc , etc.

Address communications and material, to Geo. T. Moffatt, M. D., No. 1, Hotel Boylston, Boston, *or to* James E. Dexter, care W. A. Bronson, M. D.. No. 8 East 34th Street, New York city.

MONTHLY SUMMARY.

Subcutaneous Injection of Water.—Dr. LELUT, in a communication to *L' Union Medicale* of October 5th, states that, during the last three months, he has employed subcutaneous injection of water only for the relief of pain, with the most successful results. He relates how he was induced to adopt this method of treatment by pure accident. He had left a bottle containing a solution of morphia on his desk. His servant upset the bottle, and filled it with water to conceal her carelessness. The next day Dr. Lelut, having occasion to repeat a hypodermic injection in the case of a patient suffering from sciatica, used the liquid from the usual bottle. When he saw his patient the next day, he found him in a most lively frame of mind, and was thanked by him in the following terms: "Oh! doctor, how grateful I am to you. You relieved all my pain without making me feel sick." He was astonished at this result in a patient who had suffered from nausea and vomiting after each injection. He naturally proceeded to examine the solution used, and was astonished to find only pure water in the bottle. He repeated the experiment during the ensuing days on several patients, and invariably found that he gave them relief and avoided nausea and vomiting; he has consequently, as above stated, continued to employ the same plan from June last up to the present time, with, as a rule, satisfactory results.—*Brit. Med. Journ.*

Chloride of Lead as a Deodorizer and Disinfectant.—Dr. R. H. Goolden calls attention to the value of chloride of lead, which he says is the most powerful and economical deodorizer and disinfectant.

To prepare it for use he directs to take half a drachm of nitrate of lead, dissolve it in a pint or more of boiling water, then dissolve two drachms of common salt in a bucket of water, and pour the two solutions together; allow the sediment to subside. The clear supernatent fluid will be a saturated solution of chloride of lead. A cloth dipped in this solution and hung up in a room sweetens a fetid atmosphere instantaneously, or the solution thrown down a sink, water-closet, or drain, or over a heap of dung or other refuse, will produce a like result. Even the tarnishing of gold and silver plate may be prevented by a rag dipped in the solution being hung up in the room or window where it is exposed.

He relates some striking instances of the instantaneous and efficient action of this preparation.—*London Lancet.*

Deaths from Chloroform.—A recent death from chloroform in the practice of Mr. Chesshire, one of the surgeons of the Birmingham Eye Hospital, presents some peculiar features. The patient was a gardener, forty-two years of age, who had received a gunshot wound in his right eye while beating for game on the 16th ultimo. The safety of the other eye being endangered, Mr. Chesshire recommended extirpation of the affected eye-ball. Forty-five drops of chloroform were administered on a towel, and the patient "immediately became semi-unconscious." The operation was commenced, but, the patient not appearing to be sufficiently under the influence of chloroform, forty or fifty drops more were given. Mr. W. M. Jackson, of Smethwick, noticing a failure in the patient's pulse, at once seized him by the feet and lowered his head. He afterwards practised artificial respiration, but the man died in about half an hour from the time of the first administration of the chloroform. The patient had no disease of the heart, and was free from excitement prior to the operation. It is remarkable how small a quantity of chloroform proved fatal in this case; probably not more than two drachms were used altogether, and every precaution was taken in the administration of the drug, and yet death resulted.—*Lancet*, Dec., 11, 1875.

" We have heard of another death recently in London," it is stated in the *Brit. Med. Journ.* (Dec. 11,) " in the practice of a metropolitan hospital surgeon, and of which we have seen as yet no public notice.—*Med. Newc & Library.*

Dislocating the Jaw for Chloroform Narcosis.—Dr. Fleiberg, of Christiania, recommends the surgeon to deliberately dislocate the jaw, instead of pulling the tongue out with forceps, &c. It is easy to do this by placing both thumbs behind the symphysis, and both index fingers on the posterior edges of the rami, and dragging the bone forward He seems to do it as a preventive, for he speaks of having done it *a thousand times.* Langenbeck tells us that he and Esmarch have often done this. Perhaps these surgeons will tell us if dislocation often occurs spontaneously to those who have thus been treated.—*The Doctor.*

An Excellent Tooth-wash.—An excellent tooth-wash, very much resembling *Sozodont*, is made as follows:

Carbonate of Potassa, - - -	½ ounce.
Honey, - - - - -	4 ounces.
Alcohol, - - - - - -	2 "
Water, - - - - - -	10 "
Oil Wintergreen, Oil Rose, - - - -	q. s.

—*Druggists Advertiser.*

Bi-carbonate of Soda as a Toothache Remedy.—Dr. Duckworth, of St. Bartholomew's Hospital, London, has recently successfully used Bicarbonate of soda as a remedy for toothache, when applications of chloroform, either externally to the cheek or to the ear, or placed on cotton in the decayed tooth, failed ; and when carbolic acid applied as last mentioned also proved inoperative. Pledgets of cotton soaked in a solution of 30 grains of Bicarbonate of Soda dissolved in a fluid ounce of water gave instant relief. Dr. Duckworth considers that very frequently the pain is due to the contact of acid saliva with the decayed tooth, and therefore it is important in cases of odontalgia, first to determine whether the saliva has an acid reaction. If this be the case, then a simple alkaline application, as above stated, is the most efficacious means of cure.—*Druggists Advertiser.*

Cancer of Tongue and Jaw.—Dr. Post presented several specimens, the first of which was one of malignant growth of the floor of the mouth, the lower surface of the tongue, and the parts in front, involving the bone itself, and the integument in front of it. The latter condition was not recognized, however, until the time of the operation. The patient, a male, æt. 50 years, was admitted to the Presbyterian Hospital three months since, presenting an indurated ulcer below the tongue, concerning the diagnosis of which between cancer and syphilis there was at first some difficulty. Anti-syphilitic remedies were employed, but with no marked effect, and the patient's condition after a time grew gradually worse, being unable to swallow except with great difficulty, and suffering a great deal of pain. The suspicion of the malignancy of the growth being confirmed, and the prospects of the patient being desperate, an operation was determined upon, for the purpose of a temporary relief to his sufferings. It was performed by dividing the lower lip from each angle of the mouth downwards, and making a section of the jaw at the corresponding points. The tongue was drawn forward, a large portion of which was removed. It was then found that the morbid growth had perforated the jaw and involved the integument in front. A considerable but not an excessive quantity of blood was lost in the operation.

On the morning after the operation the patient was able to swallow without much difficulty. His pulse was fair, but he was quite restless, which latter was in a measure accounted for by the absence of a large portion of his tongue and the drawing forward and fixing of the remaining portion to guard against the danger of falling into the larynx. The patient died in less than twenty-four hours after the operation, from nervous prostration, which probably was somewhat connected with the habit of opium-eating which he had acquired.—*N. Y. Pathological Society.—Med. Record.*

Collodion in Treatment of Carious Teeth.—Dr. Lardier advises, in *L' Union Medicale*, the use of collodion in the treatment of carious teeth, by dropping the collodion into the cavity, after the latter has been cleaned and dried. The ether evaporates and narcotizes the nervous twigs. By solidifying, the collodion protects the tooth from the contact of the air.

Dr. Lardier states that he has thus succeeded in relieving many patients.

Where to Look for Arsenic in Cases of Poisoning.—Observations of great toxical importance have lately been made by Scoloscuboff (*Soc Ch.* August, 1875) with reference to the distribution of arsenic in the tissues of animals in cases of poisoning. Contrary to general belief, he finds the arsenic specially condensed in the nervous tissues. The experiments were made with dogs, rabbits and frogs. Dogs bear large doses of arsenic readily, taking without difficulty fifteen to eighteen times the quantity which, weight for weight, would be fatal to man. A bull dog took for thirty-four days gradually increasing quantities of sodium arsenite in his food, rising from 0.075 grains to 2.2 grains a day. The results of the poisoning were acute and quite marked. Calling the amount of arsenic found in 0.22 lb. of muscle 1, that in the same weight of liver was 10.8; brain, 36.5; spinal cord, 37.3. A dog of 24 1-5 lbs. weight was killed by subcutanious injection of sodium arsenite in 17 hours. The arsenic from the brain gave a decided reaction, that from the spinal cord was less, while in the liver and muscles only traces could be detected.—*Scientific American.*

Warts.—Dr. Guttceit, in the *St. Louis Clinical Record*, recommends rubbing warts, night and morning, with a moistened piece of muriate of amimonia. They soften and dwindle away, leaving no such white mark as follows their dispersion with lunar caustic.

Death from Inhalation of Ether.—At the New York Pathological Society, a case of death was reported as having occurred in the Homœopathic Hospital, from the inhalation of ether. The patient had necrosis of the jaw, and an operation was determined on. He was etherized and an incision made. At this stage he became cyanotic, and was held up by the heels and otherwise treated, but death supervened in ten minutes from the commencement of the inhalation. The quantity of ether consumed was two and a quarter ounces. Dissection revealed a fatty heart but no other lesion.—*Med. and Surg. Reporter.*

Medical Diploma for Women—The *British Medical Journal* states that the Council of the Royal College of Surgeons of England has arrived at the important decision to admit women to examination for its license in midwifery. This diploma will entitle them to a place on the Medical Register, and will give them a legally recognized position as practitioners in the obstetric department of medicine and surgery. The clause in the college charter under which the right to admission has been claimed, was, it appears, expressly framed, by the use of the word "persons," so meet the case of female as well as of male practitioners, and the college has been advised that it could not legally refuse to admit duly educated women to examination for this diploma.—*Medical and Surgical Reporter.*

Camphor Poisoning.—While some camphor was being weighed out, a lad of thirteen picked up two small pieces and took them away with him, for the purpose of floating and burning them. Soon afterward he began nibbling the camphor, and, as it afterward appeared, liking the taste of it, continued to do so until he he had eaten the two pieces. This was about four o'clock in the afternoon. Four hours afterward the child was with his brother in the dispensary, looking on, and was observed to do something which elicited the remark, "Are you dreaming?" No reply was given by the child, and it was noticed that something was wrong with him: his eyes were fixed in a stare, and he stood motionless and unconscious, His brother took him up to carry him into an adjoining room, where his father was, when he immediately became convulsed and perfectly rigid, with his head and legs bent back, so that he could only be placed on his side upon the floor. The convulsions increased until the flesh from the head to the shoulders became purple, and the pulse decreased rapidly until it could not be felt. The body then lost its rigidity and was apparently lifeless, but in about ten seconds the pulse could again be felt, the convulsions returned, and the child foamed at the mouth. Applications of cold water brought him round in about four minutes; violent vomiting then ensued; the child was for a time hysterical, but within an hour from the first attack he was so far recovered that he could be put to bed. The child afterward described the pieces of camphor which he ate as being each half the size of his thumb, and the assistant, who noticed him take one piece, thought it must have been about sixty grains in weight. The effects produced in this case were more severe than in any of those previously reported, and there was the further differences that unconsciousness preceded the convulsions, while in the other cases it followed them.—*Pharmaceutical Journal.*

THE

AMERICAN JOURNAL

OF

DENTAL SCIENCE.

Vol. IX. THIRD SERIES—APRIL, 1876. No. 12.

ARTICLE I.

Address—Concluded.

BY W. W. H. THACKSTON, M. D., D. D. S.

Delivered before the Virginia State Dental Association.

It is nothing to the discredit of modern medicine that its former representatives were quacks and charlatans, barbers, cuppers and leechers; and it is nothing to the disgrace or reproach of modern dentistry that *its* practitioners of the olden time were strollers, mechanics, tradesmen and tricksters. Both are now honorable and indispensable professions; while both must acknowledge a very obscure and humble origin; and for a time, a very discreditable history and following.

We admit the fact that dental surgery as a profession is but yet in its youth—in the "green tree," while medicine is comparatively hoary with age, and teeming with honors; we concede our dependence upon several of the departments of medical science for the correct apprehension and successful practice of dental surgery, just as the portrait painter and sculptor are dependent upon anatomy, for the proper treatment of *their* subjects—as the pharmacist is dependent upon chemistry and Materia Medica, and the criminal lawyer upon toxicology and medical jurisprudence, as a preparation for their several pursuits. And while we do not depreciate or undervalue the departments of medicine forming an integral part of our professional training, yet *of* themselves and *by* themselves, they can no more make, or qualify the *dentist*, than will the possession of a medical degree qualify or evidence the painter, the sculptor, the pharmacist or the lawyer.

While, in many senses, the relations of medicine and dental surgery are close and intimate, there are nevertheless broad and ineffaceable lines of distinction, which individualize and will forever separate the two; and these differences are inherent, educational and practical. The M. D. may become a safe and skilful dentist, but *not* because he is a thoroughly qualified physician: the "D. D. S.," may become a respectable general surgeon, or practitioner of medicine, but *not* because of his attainments or skill as a dentist. All this we assert and admit with cheerful frankness and unreserve, but we do not admit that we are dependent as individuals, or as a profession, upon any other class of men for our social or professional status. We do not admit that it is politic, or wise, or dignified, to be clamoring for admission into outside organizations, or compatible with a becoming regard for our calling, or respect for ourselves, to be dancing attendance upon medical men for the poor boon of professional recognition.

We beg to suggest to our restless and dissatisfied brethren, that the readiest, the most certain, as well as the more manly and honorable means of securing the consideration for which they sigh and groan, will be to *deserve* recognition by the display of superior talents and attainments *as dentists*, and by the exhibition of virtuous and stainless lives and characters as men. These will command and secure all the respect and consideration an enlightened and elevated character can covet or desire. And we beg further to suggest, that the "flunkeyism," the self depreciation, and medical boot-licking which has distinguished this movement can legitimately secure no other result than the contempt, the derision and the disgust, not only of *true* medical men, but of intelligent and elevated society everywhere.

We trust, gentlemen, that if you have entertained any doubts upon the subject, we have satisfied you that dental surgery *is now* a profession; and that our distinctive college degree *is* a valid, expressive and appropriate degree; that it represents and expresses in dental surgery *all* that "M. D." does in medicine; and a great deal more even in medicine, than the "M. D." can possibly do in dental surgery; for the educated dentist *does know* something of medicine, while the physician is untaught, and absolutely ignorant of the very rudiments of dental surgery.

Let the purely "M. D." dentist enter the arena of practice, and however skilful he may diagnose disease, or write prescriptions, or saw bones, he will find himself unable to save or replace a human tooth; he may successfully reduce dislocations, and adjust fractures; but the simplest operation in dental surgery will overtax his ability and exhaust his resources; and U. F.—"Utter Failure"—will be the appropriate badge, or symbol of *his* very partial and most inadequate culture for the duties and offices of the dentist.

And now, gentlemen, permit me to say a few words about our educational system, and the reckless stupidity and criminal folly of any attempt to disrupt, or break-down, or radically change that system, for any of the old and tried and exploded systems of the past; or for any doubtful or questionable plan or method or experiment of the present.

It is proposed in some quarters, not only to abolish our college degree, but to abolish the colleges, and dissolve our faculties of instruction,—to go back, and again attach ourselves as a caudal appendage to the purely medical institutions of the country—thus yielding the vantage ground, and surrendering the prestige we now enjoy, and for which we have paid the sacrifice of labor, of money, and the lives of our best men of the nineteenth century.

Now, gentlemen, to be brief and concise, from the days of *Fauchard* to the establishment of the Baltimore College, a period of over a hundred years, the medical schools were open all over the world to students of dental surgery; many availed themselves of all the facilities and resources those schools afforded; and what was the result? What sort of dentists did they make? And what was the status and progress of dental surgery under that regime? You may count upon your fingers every dentist who in that lapse of time, achieved individual distinction, or in any sense, advanced dental science. "A baker's dozen" will comprise every name that history honors with a passing notice. Dental surgery was then indeed and in truth, with few and rare exceptions, a business, a trade, and an occult art. Character it had, but it was the character of the empiric and charlatan, of the impostor and trickster. But in 1839-40 a new departure was taken, a college of dental surgery was incorporated and put in operation, the American Association of Dental Surgeons was organized; with Harris, and Hayden and Parmly at its head; the American Journal of Dental Science was established and published; and what has been the effect on dental science; not only in this country, but all over the civilized world? The results are before you, and all around you.

I shall not consume your time by describing the progress and improvements in dental science during the past three decades, and I need not pause to compare the present social status of the dentist, with the period when the very *epithet* carried to its miserable wearer the distrust and suspicion of society. *Then*, our representives were only too happy to be acknowledged as respectable and trustworthy; now, they are so elevated, that with some of them, nothing short of recognition as physicians and general surgeons will satisfiy their vaulting ambition.

What warrant or assurance have we, that we shall better our condition or improve our prospects by striking down the institutions and influences that have made us what we are? That have given to the title of "American Dentist," a world wide celebrity and distinction, and returning to the old, the effete, and abandoned system, that choked and stifled all progress; that covered us with the rags and tatters of professional garniture, and held us for one hundred years under the ban of professional outlawry and social ostracism?

We confess, gentlemen, that we can find nothing to base even a rational hope upon; we can find nothing in the arguments in favor of exclusive medical training, and purely medical schools, and nothing in the ungenerous and disparaging assaults upon our special and distinctive system and schools, but the abiding conviction, that the movement is suicidal, and that its success would be the very "consummation of madness and folly."

Let us then stand by our present system and agencies as the palladium of our safety, the anchor of our hopes, and let us accept the startling and brilliant progress of the past, as earnest of the prospective and more brilliant achievements of the future.

We know that our colleges have been sharply criticised, and our faculties of instruction severely censured, perhaps in some instances deservedly; but often causelessly, *ignorantly*, and *unjustly*. We are not the apologist of the shortcomings and delinquencies of our schools; we know that the Alumni and graduates have not always reflected credit upon their *Alma Mater;* nay more, they have sometimes been a living and standing reproach to their professsion; but it should be remembered, that exceptionally, the material our professors have had to mold and work up, has not been of the very best; many of the matriculates of these schools are poorly prepared, and labor under disadvantages that no ability or fidelity on the part of the teacher can possibly compensate; defective primary education, lack of application and want of natural capacity, are the most common of the difficulties our college professors have to encounter. It is no easy task to force ideas through a thick skull, or provide brains for an empty head; that is a feat that not even medical schools have essayed, or at least successfully performed.

But in all these regards there is no appreciable difference between our own and all other schools. Other faculties are as often incompetent and delinquent as ours, and their graduates and degree men as variable in attainments, in character and in capacity as ours. It is no fair or just argument against a system, or a particular school, that we now and then encounter a graduate who is worthless and incompetent. Judged by such a test, *no* school in science or in letters could stand, and it is simply unreasonable and absurd, to expect or demand of our institutions, an infallibility never approached, or even contemplated in any department of human learning.

Our peculiar system of preparatory training was maturely considered, and wisely arranged by the distinguished and venerable men who created our profession. Every essential and available department of science was made tributary to the course of study adopted; subsequently, as improvement and advances have been made, the curriculum has been extended, and the corps of instructors strengthened. Beginning with a faculty of four professors, the course has broadened and lengthened, until now, the staff of instructors, professors, demonstrators and adjunct professors, number from ten to twelve in each school, and the most complete and liberal arrangements for infirmary practice and clinical instruction have been provided. We draw our medical instructors from the ranks of competent and qualified physicians; and it is simply puerile and foolish to say, that these men cannot, and do not teach their several departments as successfully and thoroughly in one school as in the other; and it is equally absurd and senseless to say that the dentist could lecture and instruct more satisfactorily and efficiently in a medical school, than in the halls of his own academy or college. And we ask again "*Cui Bono?*" What advantage, what compensating benefit can we reasonably anticipate from the proposed change? We confess, *we* can see none, we can rationally hope for none.

But we do see, that in our own schools, dental surgery as a unit, as a unified and complete science and profession, is the *leading* and distinguishing object and idea; while in the medical schools it would *not* be the leading object or idea; but a mere secondary, and subordinate appendage, confering no dignity or character, and exciting no special interest or concern with either teachers or students. We ask you then, gentlemen, as you value the present interest and future welfare of your chosen profession, as you value its importance to yourselves, and its worth to humanity; to sustain and uphold your *present* educational institutions; support them by your personal patronage and influence, and when called upon, give them a portion of your time, your labor and your money.

We admit, that some mistakes have been made in carrying out the work conceived and organized by Harris and Hayden, but these errors will in time work their own correction by the force of natural laws, which sooner or later, always assert their supremacy. Without reference to any special or particular institution, and in altogether a general sense, we must say, that we have at present, manifestly too many schools within. Certain limits, and under certain conditions, competition exercises a wholesome and vital influence; beyond those limits and conditions the maxim, that "competition is the life of trade," or the life of anything else, is a *fallacy*, and this fallacy has been most conclusively, and most sadly illustrated in the history and condition of our struggling and languishing colleges.

Beyond prescribed and well defined limits and conditions, competition is blight, and mill-dew, and death. The population of our country is too sparse—the demand for educated dentists is yet too limited, and the pecuniary resources of our people too scant to sustain the present number of our distinctive schools; and it is a sad and melancholy spectacle, to see good men frittering away their strength, and exhausting their energies upon classes so small, as to afford the instructors no compensation, save the consciousness of having faithfully performed a "labor of love." Carry out, or slightly extend this principle of competition; establish a school for dentists in every county of the State, make every tenth, or even twentieth man a dentist, and how long would the schools or dentists live?

But, as we already have these institutions in operation; if we cannot induce them to combine and consolidate, and thus bring the principle of competition within healthy limits, as was the desire of the Southern Association five years ago, why, we must do the best we can with, and for them, and let the future determine the destiny of each. We do not discriminate, or mean to be invidious. We have now in the South and South-west, four or five of these schools, all we believe, doing their best to deserve success, to command respect, and to perform thoroughly their appropriate work; and it should be our duty and pleasure, as it is manifestly our interest and advantage to sustain and encourage them by our sympathy and cordial co-operation.

And in this immediate connection we will say, that we cannot more effectively aid these institutions and enterprises, than by exercising care and discrimination in accepting students. We have told you on a former occasion "that relatively few men are capable of being made respectable or skillful dentists by any method or system of training; and when we are approached by one manifestly wanting in the essential qualities and attributes demanded by the needs of dental surgery, we should frankly and earnestly direct his attention to some other pursuit, suited to his talents and aptitudes."

While we should make a fair academic education an indispensable condition, and while we acknowledge the value and convenience of private office instruction, we honestly believe that our present college laboratories and infirmaries afford the very best means of preparation that a student can possibly avail himself, to profit by the regular lecture terms.

In a private office, if the dentist is well qualified to teach, his time is too valuable to himself, and too much occupied with the demands of his practice to be devoted, except to a very limited extent, to the instruction of a student; nor can he afford, or will he be permitted to turn over, or entrust his patients to the care of a novice.

By far the best course for all parties, and for every interest involved, will be to send our students to the college laboratories and infirmaries, where they can be prepared and qualified for the regular lecture terms under the guidance and supervision of the adjunct professors and demonstrators, with all the advantages of laboratory practice and experience; and the more important benefits of clinical observation and assistance. Our schools would thus secure additional support, our students incalculable advantages, and the private practitioners released from a burden and responsibility that few competent to teach, can afford to incur.

In conclusion, gentlemen, we are persuaded, that with our present resources and facilities, with the vantage ground we have gained and now occupy, with concentrated effort, and determined purpose to stand by our colors and to recruit our ranks with the better class of men that we are now attracting to our schools, dental surgery will maintain its status as a progressive, liberal and learned profession; and without any entangling alliance, or subordinate relation to any other profession, transmit its distinguishing characteristics, its honors and its benefactions, not only to our immediate successors, but to remotest posterity.

ARTICLE II.

"Dental Legislation."—Review of an Address by C. W. Barrett.

Read before the New York State Dental Society.

BY J. B. HODGKIN, D. D. S.

Whether the mass of practicing dentists realize it or not, assuredly the day is fast approaching when some well-defined and legal status must be assigned our profession. The present anomalous condition, a necessary consequence perhaps of the rapid and irregular growth of dentistry, cannot much longer exist without serious damage to the prospects of the profession. That it must assume a higher position, that it must occupy more advanced ground, is a necessity growing out of our near relation to things about us which do stand high, and necessary also from the leaven which is at work within us,—thoughtful minds and earnest aspiring spirits,—and these are rapidly multiplying.

That dentistry is but a branch of medicine, must of course be apparent to all who for a moment reflect upon the subject. A minor and subordinate part it may be, but nevertheless an integral portion of that science; and is—dispute it and sneer at it as medical men proper may—in its sphere and in its more cultivated aspect, quite as scientific. And as medicine is under the protection of the law, it is time that dentists were considering their legal relations, and the question of legal protection. It has been demonstrated we believe that they are liable to prosecution for malpractice, and that a tooth has a real and tangible value which can be estimated and sued for; and it is worth while that the law should discriminate in favor of those who are, by education and training, in a position not to commit those crude and gros, errors which stamp the pretendor, and against the upstart and the charlatan.

That the profession can and should have this protection, and that it may have it, is the gist of an address lately delivered by Dr. W. C. Barrett, of Warsaw, New York, before the New York State Dental Society, and published in the Dental Register, and also in pamphlet form. The address details the necessity for, and the benefits of State Legislation in the interests of the dental profession, and urges *organization* as its first aim. We quote the opening paragraph:

> "Whether, in the estimation of the world, Dentistry shall be classed as a liberal and learned profession, or shall degenerate into a mere handicraft trade, rests, in a great, measure, with the dentists of to-day. What shall be its future, is a question well worthy the attention of every practitioner, who has a thought above the mere bread and butter aspect of the case."

Introducing the subject thus, Dr. Barrett proceeds to consider the question as to dentistry being a medical specialty, and assumes that the pursuit of a specialty presupposes an acquaintance with general practice; and a subsequent divergence and devotion to a particular branch. He thinks that "the resentment shown by the medical profession proper, toward our rather impertinent claims is but the exhibition of a proper spirit on their part."

It is certainly true, that dentists have no right to expect full recognition as medical specialists until they bring forth fruits worthy of such recognition. So long as dentists run after physicians to administer anæsthetics for them in their (the dentists') offices; so long as maxillary fractures are the *bete noir* of the profession, and operations plainly belonging to facial surgery are relegated to the general surgeon—so long in a word as a general subserviency to the claims of the medical profession is seen every where among us, is it any wonder that the D. D. S. is recognised as "a badge of partial culture?"

Really the relations of dentistry to medicine must be discussed on hypothetical grounds, rather than on conditions that exist. If dentists expect that general recognition which will one day be accorded them, they must be something which they are not now. They must occupy higher and more advanced ground. It is not sufficient that a few advanced men here and there, scouts as it were, have penetrated into the territory so jealously guarded. The move must be a general one of rank and file. We must show not only that we have a title to the position, but that we can assume and maintain it. It is to stimulate such a move that Dr. Barrett writes:

> "We possess all the elements of a profession, but so long as we are but an unorganized mass, with no responsible head, we cannot wield our true professional influence. We have schools, a literature, learned men, enthusiastic students in science, whose fame is not circumscribed by the boundaries of state or county: but a mob, even of officers, is not an army. For proper and effective organization, there must be some central heart, from which shall radiate, and toward which shall converge all the life currents, so necessary to the suppor tof an organism. Heretofore, the efforts for the advancement of Dentistry, have been individual and desultory. While each was anxious that his chosen profession should secure the respect of the other, there has not been a necessary harmony of action. All have desired recognition from our near kindred, medicine. But there has been no unit for their acknowledgement; there has been no responsible head, to which the avowal might be made. Themselves thoroughly organized in schools, with clearly defined lines of demarcation, they have hesitated to give the hand of fellowship to an irresponsible, disorganized aggregation, however respectable otherwise. Having a settled habitation, they are distrustful of the dwellers in tents."

Some barrier, marking the confines of our profession must be erected, that we may know and those outside may know what is its scope, aims, designs. Until this is done, until some distinction is made between the usurper and pretender, and the true and worthy practitioner, it is in vain to expect formal recognition and fraternity with those who for themselves possess these safe-guards and zealously guard them. This is well recognised as necessary in other professions, Law, Theology and Medicine. A diploma or its equivalent, is in their profession a condition precedent to practice.

Granting the medical diploma is rated at its true worth by those who are aware of its real value, or want of value, and who are posted as to the ease with which it is obtained; still, public sentiment has been educated to a firm belief in its importance, and of its being absolutely essential. And this feeling on the part of the uninitiated, the medical profession is ever on the alert to stimulate and foster. How, in those States where the non-graduate of medicine is so lucky as not to be absolutely prohibited by law from prescribing and taking his fee, he is professionally ostracised, is contumeliously thrust aside, is a matter of familiar knowledge. No amount of skill,—and it is certain that some of those who have "picked up" medicine are possessed of not a small amount of this; no amount of study or natural gifts, are allowed as an offset to the degrading admission the unfortunate is obliged to make,—"I have no diploma." Through this gate, and through this gate only must we pass in order that we may join the ranks of the favored. Only in this way can we be possessed of the immunities and privileges of the "regular" practitioner.

Until the dental profession shall establish some such system as this, and rigidly adhere to it; until they shall assume some such attitude as has been assumed by the medical profession, and shall show by their acts that they are sincere in assuming it, and that they will not fraternize with those who are reaping the benefits of their studies without sharings its toils, they must not expect better things than they now have. Dr. Barrett proceeds:

> "If we would take the place which of right belongs to us, we must come up to the high plane occupied by the other professions. When, possessed of equal learning, we aspire to equal recognition, we must first take equally firm ground, and give security that we will not recede from that position. In but very few States have we an organized existence. There is no central point around which may crystallize the elements of a profession. We are generally an irresponsible jumble of learned and ignorant, capable and incapable, competent men and quacks, the latter greatly in preponderance,

and this undisciplined mob has pressed forward and demanded a place beside the professions whose immunities have for centuries been jealously guarded from interlopers and charlatans. Instead of our exemplifying the true professional principle, and endeavoring to disseminate scientific truths and knowledge, it has until quite lately been the practice for dentists to jealously guard their operating rooms and laboratories from the prying inspection of their neighbors, and to hoard up the poor scraps of knowledge they had acquired, lest their professional brother might benefit thereby. Or more probably, the possessor of some fancied or real improvement straightway secured a patent upon it, and began to vend out his knowledge. Dental patents have done more to prevent our attaining self-respect and the respect of others, than any one thing. He is scarce worthy to be called a member of a liberal profession, who only studies the field of science that he may make it tributary to his own selfish gratification;—who has no love for original investigation for its own sake, but only pursues it because it is capable of being turned into a source of personal profit;—who would use Promethean fire, stolen from heaven, to cook his steak by, and turn Pegasus into a cart horse. This is not the conduct of him who is worthy to be called a member of a learned profession; whose study is that he may gain knowledge for the purpose of imparting it to his professional brother, that thus his beloved profession may, *as a whole*, be raised, and the scientific education of its members, as a class, be thereby perfected."

To establish an *esprit du corps*, and bring about a proper professional feeling, requires organization. In no other way can it be done. The labor of a solitary thinker or worker here and there in the matter can avail little, so long as there is no concert of action. The field of dentistry most certainly belongs to dentists. They have won it fairly, by hard work. It is ground entirely unexplored by the medical profession, and they are slow even now to recognise the value of the fund of knowledge which the labor of dentists has brought them. If they avail themselves of the light which dentistry has thrown on obscure pathology, they are in some sort incredulous as to its source. Thoroughly explored and cultivated as this field has been by the dentist, it is due the profession that they should legally possess it. As Dr. Barrett says, "having subdued a certain portion of the field of science and adopted it as our heritage, having thoroughly explored and cultivated it, some legal recognition is necessary that our title may be made good."

How shall dentistry free itself from the gross elements which so trammel its progress onward, which are so sadly in the way of its advance? Not by prohibition. Dental Legislation, which means this must fail of its aims. It is important that the large mass of those outside of the colleges should be conciliated, for they vastly outnumber the graduates. According to Dr. Morgan, of Nashville, Tennessee, not eight per cent. of all the dentists practicing in the South are graduates of any college; and out of two hundred and fifty practicing dentists in Tennessee, says the same authority, not twenty hold dental diplomas. It is probable that the proportion is somewhat greater in other places, than the localities named, but not greatly. So that, while it is important to institute some means to protect ourselves and benefit the people by delivering them from the hands of the pretentious and ignorant, it is well to see that these means are such as not to array in hostility against us this immense outside majority.

"In the consideration of Dental Legislation, men are apt at once to jump to the conclusion that it means prohibition, and this it is which has arrayed against it all the quacks, and many of the qualified practitioners. A greater mistake could not be made. If interdiction of any class ever be allowable, it comes only as a subsequent. The first aim of all dental legislation should be ORGANIZATION. We ought not to commence with enactments against any particular class, till they have had time to bring forth works meet for repentance. We should strive to convince the ignorant and incapable that we are laboring for the benefit of all, and thus secure their good will, and not render ourselves liable to the charge of proscription. To this end, while not throwing down one bar to their admission into our societies, we should smooth the way to the obtaining a proper professional education."

This will take a long time. It is much to be feared, looking at the matter from a practical point of view, that most of those who are now practicing will be ready to retire or will be retired by the hand of death or disability, before we see this field in good order. Considering the slow growth of medical science, it is comforting to think that we have done as well as we have, and really we may pride ourselves on deserving a great deal of credit. Still, as Dr. Barrett says, " when the other professions see a responsible head to a body of learned men, who are devoted to the study of science in their own particular field, recognition and acknowledgement will not long be delayed." But want of organization is fatal to the first step—indeed organization must precede any other step in this direction.

Three kinds of legislation have been procured in the interests of dentistry so far in this country. In Ohio, New Jersey and Georgia, stringent laws have been enacted, prohibiting non-graduates from practicing. But little attempt however is made to enforce these laws, and where the attempt has been made, it has met with much opposition. The following statistics from Ohio will show what legislation has done, and also the relative proportion of the two classes, graduates and non-graduates, to each other.

" In the year 1873, the whole number of dentists practicing in Ohio was 433. Of this number, 99 or about 23 per cent were graduates. Of the remainder, 142, or about 43 per cent. had passed the examining board, while 192, or about 44 per cent. of the whole had done neither. Of all the dentists of Ohio, 56 per cent. were legally qualified to practice while the remainder, nearly half, were living in open violation of the law."

Incorporation of Dental Societies is another means by which dentists have sought to protect themselves. No obvious good has seemed to result from this so far.

The third kind of legislation is represented by the New York State enactment, which gave rise to the Dental Society of the State of New York.

"The object of the orginators of this law, was to thoroughly organize the profession of the State, establish for it some definite limits, secure perfect legal recognition, and institute a criterion by which the good might be distinguished from the bad, thus throwing the whole moral weight of the community for the one and against the other. So well has it succeeded in its work, especially in the country districts, that I propose to here give a review of its provisions, setting it up as a kind of example of this class of legislation.

The New York State Dental Law divides the state for dental purposes into eight districts, following the boundaries of the judicial divisions as establishing lines familiarly known, and districting the State into convenient and proper provinces for the purpose sought. In each district the law establishes a dental society, and eight delegates from each district dental society, elected to serve for the term of four years, together with an indefinite number of permanent members, of whom five may be elected each year, to be selected from among the eminent practitioners of the State, and two representatives from each dental college in the State, makes up the society, which the law provides shall meet at least once a year in the Capitol at Albany. Its expenses are provided for by the levying of dues upon each district society, by the dues of the permanent members, and by the fees to be collected upon conferring its diploma. District societies are subordinate to this State society, and must make to it an annual report of their status and proceedings. Each district society elects a board of censors, before whom must appear every student in dentistry who proposes to commence its practice. Should he successfully pass the examination of the board, he becomes entitled to the diploma of the society and to membership therein, and is permitted to open an office; but without such diploma it is made unlawful for any one to commence the practice of dentistry, *subsequent to the passage of the law.*"

There is no penalty for such as fail to conform to this law, save the opprobium of being constructively branded as quacks. The "board of censors" meets annually or oftener if necessary, examines applicants, and such as pass are certified to the State society, which can confer on the applicant the diploma and degree of "Master of Dental Surgery," (M. D. S.) The recipient of this diploma is required to sign a bond to "walk worthy of his vocation."

"There was no difficulty in obtaining the passage of the enactment, for there was nothing in it to arouse opposition in the legislature, and to-day the law and society are so strongly entrenched in the good will of the people, that further legislation might, if thought desirable, be easily procured. There has been no attempt at bluster; all has been done quietly but thoroughly, and while no astonishing revolution has overturned the existing order of things, the good effects of the law have been felt everywhere, and its originators have every year seen greater and still greater reason to congratulate themselves upon the original moderateness of their demands. If in the future it be thought advisable to press more stringent measures, the society having gained a firm foothold and having practically enforced previous legislation, will find it comparatively easy to obtain enactments establishing proper penalties for the infringement of the existing status."

This legislation, it is claimed, has wrought a great amount of good. It secures perfect organization, bands members of the profession in adjacent sections together, close professional intimacies are formed, and the profession throughout the State feel that they have a common interest in keeping up the society.

As to the establishment of the degree of M. D. S. (Master of Dental Surgery,) it is of course understood that it in no way conflicts with, or is a substitute for a degree from regular school, nor is it given as evidence of special scholastic training. It was instituted for the benefit of a large class who, of necessity perhaps, had obtained their dental training at home; some, doubtless many, of whom are quite as well qualified to practice as those who have passed the ordeal of the schools. The degree simply determines the status of such; and if, as is stated, a strict examination is given them, they are respected as having complied with the terms of the law. This degree is quite largely sought after by regular graduates.

"It does not in any way relieve the student from the necessity of attendance upon a dental college, as the degree of Doctor of Dental Surgery only, indicates the possession of the necessary qualifications for the practice of dentistry while this is proof that he is putting to a reputable use his dental education, and is in successful practice. This degree, analogous to the Licentiate of Dental Surgery of Canada, though requiring much higher qualifications in the candidate for its possession, has been a great incentive to study on the part of the younger members of the profession, and indeed many of the older graduates have found it necessary to brush up considerably anticipatory to making their appearance before the Board of Censors. Instances have been where the candidate has been repeatedly rejected, only to go through another year's careful study and another trial."

Dental legislation, if even of this imperfect sort, must, it is not difficult to see, work much good,—must result in protection to the regular graduate. A few of its benefits are detailed by Dr. Barrett:

"It expressly entitles us to 'all the privileges and immunities heretofore accorded to the medical profession:' Under it, in the cities, dentists claim exemption from jury duty, and professional fees when summoned as professional witnesses. The annual reports of the society are made to the Legislature and are printed and published as official documents, the same as are the reports of the State medical societies, and the various charitable institutions under the patronage of the State. But the greatest advantage gained through legal enactment, is in the recognition of the claim of dentistry to an honorable position by the side of medicine, law and theology."

Dr. Barrett concludes with the hope that the other States will adopt some plan the equivalent of this, and that we may soon look forward to a National Dental Association.

There is one thing that must sadly hinder all attempts at improvement by union of forces. The petty jealousies, the bickerings, the enviousness and heartburnings which so mar our intercourse with each other, and which are seen so plainly to affect our association with each other, will baffle any attempts at organization, or so hinder it as to make it nugatory and useless. Until our dentists can realize that the interest of one is the interest of all, until they fully understand that the advancement of their profession as a science is better than the advancement of their individual practice, it is not probable that anything substantial or noteworthy in the way of organization will be accomplished. So long as dentists show by their acts that they do not desire professional fraternity, it is difficult to see the way to remedy existing evils. Concert of feeling must precede concert of action. How to get this is a perplexing problem.

ARTICLE III.

Gold Screws for Retaining Fillings.

BY DR. K. B. DAVIS.

Read before the Illinois State Dental Society.

It is doubtless the desire of every progressive operator to secure greater efficiency in the conservation of the dental organs, by adopting any means, or calling to his aid any methods or appliances that may render his fillings more easy of performance, or that may produce more certain results, than are usually secured, to their integrity and durability.

It is very gratifying that we have an improvement by which we may overcome any danger of fillings loosening or proving failures, in a class of the most difficult cases that we are called upon to treat.

Perhaps in all ordinary cavities little or no difficulty is experienced in securing the filling in such a way as to have it permanently retained; but there are many cases that we are all called upon to treat, not coming under the head of simple cavities, when it is very desirable to resort to something more than the usual methods of anchoring the filling, if we desire the operation to be a permanent one.

Gold screws for retaining fillings were first introduced to the notice of the profession by Dr. Dwinelle, of New York, in the year 1855, and was published in the *American Journal of Dental Science* (Vol. V., new series p. 274.) Perhaps they were occasionally used by various operators, but it seems that they were by no means generally adopted by even the best class of operators. Even at this time, when their merits are so fully and frequently made known by all who are habitually using them, we fear that there are many who have never become acquainted with their value in filling many difficult cavities, where they have hitherto had many failures.

It seems, however, that many practitioners are perfectly satisfied with their present standing as operators, but it is scarcely necessary to remark, that these self-satisfied gentlemen are almost invariably of that class, whose operations are for the most part perfectly worthless, and who are themselves a disgrace to the profession to which they claim to belong. The truly progressive operator is always on the alert for new suggestions, never failing to get out of them all the good they may contain; and no better assurance is needed that a dentist, no matter what his present skill may be, will soon fall behind his fellow-practitioners, than to hear him say that he is perfectly satisfied with his methods of practice, and wishes no better.

The screws and the instruments for their use that are now before the profession, are by no means all that could be desired, and it is to be hoped that some one will soon give us both screws and instruments for their insertion that will be satisfactory.

These little aids in giving our fillings such perfect security are not called into constant requisition like the mallet, rubber dam, and dental engine; but in those particular cases where their use is indicated I do not know of any substitute, nor do I see how any one that wishes to secure the very highest results in conservative practice can dispense with their use. It is true that some operators of high skill and great ingenuity may succeed without their aid, while the masses of the profession, not possessing these happy endowments, would signally fail.

And this brings us to a consideration of the application of screws in filling. I think as a general rule they should be used in every case where we cannot give ample security to the filling by the use of the ordinary retaining pits, grooves, or undercuts. In fact, we can very frequently use them in conjunction with the retaining pits, to give greater stability to our filling, using at eligible points one screw, with one or more retaining pits.

There has been much discussion recently, both in our dental societies and the journals, upon the subject of contour fillings, many urging the impropriety of attempting, as a general rule, to restore the original contour of the teeth in filling; claiming as a reason for this opinion, that such fillings are very much disposed to break off, and thus ultimately result in the loss of the tooth. Now were those who so vehemently argue against contour fillings, in the habit of securing this class of fillings by the use of gold screws, they would readily be convinced of the fact, that by their use these fillings may be made as secure, and retained as permanently, as any other class of simple fillings.

There are two classes of cavities in which the screws are peculiarly indicated. They are, first—all cavities involving the loss of a greater or less portion of the crown, or cutting surfaces of any of the anterior teeth, when we wish to restore the original contour; and in the second place, they should always be used to give greater security to the gold in restoring or building up teeth whose crowns are much worn from the effects of abrasion. Of course, they have a much wider range of application than the above classes of cavities which will readily suggest themselves in each particular case to the experienced operator.

Any one entertaining doubts as to the anchorage secured by the use of screws in contour fillings, will, from the inexorable logic of practical experience, find all such doubts rapidly vanish.

By their use in many instances we are enabled to save a great deal of dental tissue, thus being permitted to fill many cavities without cutting away dentine in order to secure a properly-shaped cavity for the retention of the gold.

Again, they will enable us to save a great many teeth without destroying the pulp. There are many cases where we are called upon when it is impossible to give them a proper retaining shape, without coming into dangerous proximity to the pulp, and in many instances we are compelled to destroy it, owing to a loss of the buccal and lingual walls, in order to get a good foundation for the filling, or otherwise we must resort to the use of the screw, to give security to the filling.

In building up badly abraded incisors or cuspids, I have found the screw invaluable. In many instances these teeth are worn down very nearly to the pulp, necessitating considerable excavating of the only remaining dentine; that is, just above the already much receded pulp, in order to successfully fill them in the old way. Now in order to obviate this, we need only insert from two to four of these little screws into such teeth, without any excavating whatever, and commence our filling; building it up and finishing it with the utmost confidence as to its security and permanent durability.

With reference to the methods of manipulation, it is rather difficult to write,—one observation of their application giving more satisfactory knowledge than many pages of written instructions; and I shall only give, briefly, what I consider to be the chief points to be observed in using them. Then, having a case to treat where we think they are indicated, after having excavated or otherwise prepared the tooth for the operation we select a drill, just the least bit smaller than the screw that we wish to insert, and selecting suitable points in the cavity, or tooth, as the case may be, we make as many pits as we wish for the insertion of the screws. In drilling pits to secure the screws, care should be taken to select a strong wall or portion of dentine so as to give a firm hold to the screws, so that they will be perfectly immovable under the blows of the mallet in consolidating the gold.

I have found from personal experience that the taps belonging to Dr. Mack's set of instruments, and designed to cut a thread in the dentine for the screw are perfectly useless. The screw-threads will cut their own way in the dentine and be very securely held there if we will use a drill as above stated, slightly smaller than the screw, inserting them deep enough to give them a secure footing in the dentine. Having our cavity ready, we take up a screw and with a fine file carefully bevel the square end that is to be inserted into the dentine; we carry it to the retaining point prepared for it, and with a few turns of the driver we secure it firmly enough to hold the filling. It is not necessary to insert all of the screws that we wish to use in one filling at once; we can insert one, and then commence introducing the gold, and then as occasion requires, put in the others.

We will usually have to start the filling by making a small retaining point near one of the screws, and after filling this we will continue to condense the gold around the screws as compactly as possible until they are covered, when the filling is finished in the usual way.

It will be readily perceived that the use of gold screws does not facilitate the operation of filling, as they are very much in the way in packing the gold; nevertheless, we deem it the duty of every operator to avail himself of every facility that will enhance his usefulness as an individual member of the profession, and at the same time promote the highest interest of his patients.

ARTICLE IV.

The American Academy of Dental Surgery.

A regular meeting of the Academy was held in New York, on Tuesday evening, February 29th.

Dr. George H. Perine, President in the chair. The chairman of the committee on Dentists in the Army and Navy being absent, no report was made.

The Treasurer, Dr. R. P Perry, presented his report. Dr. George E. Meigs, librarian, exhibited his report, showing quite an addition to the library and museum since his last statement. The corresponding secretary, Dr. E. S.

Howard, presented a number of letters received from Fellows in different parts of this country and Europe, which had been received since the last meeting.

Among the number read from fellows, was the following from Dr. John D. Miles, President of the Mississippi State State Dental Association:—

"Sickness in my family will prevent my compliance with your kind request to be with you, and read a paper on the 29th instant. This I much regret, for the reason that I should reap great practical benefit from the proceedings of so experienced a body of scientists and original thinkers, and although unable myself to give any learned disquisition on the many obstruse subjects in the range of dental science, yet I might hope to produce something from the repository of twenty years of dental experience, that might entertain, if not instruct the most erudite."

Dr. Geo. W. Field, corresponding Fellow, writes from London, England. He says:

"We of this side of the Atlantic, feel that it is 'carrying coals to New Castle' to send news (professionally) from the old to the new world. Of all branches of science and of all arts, there are doubtless none except our chosen specialty, which may not claim Europe for its headquarters, and here they attain their highest perfection, practically and theoretically. While we have a Harris of the past, and a Garretson of the present, illustrating rise and progress, we have no need to look to Europe farther than to keep well in mind that great effort is being put forth in England to outstrip all that has gone before, and if possible to leave all mediate competitors far behind. And I must add, that the strides in *theoretical knowledge* are wonderful and worthy of emulation, but the great utibility of practical ability, is almost totally ignored by the most zealous labors in the advancement of dental education. At the present time, efforts put forth have but one object in view—to elevate the dental profession in England by the only legitimate and possible means to the same level, and the same recognition professionally and socially with the medical profession. This is slowly but surely being accomplished; with such men as Tomes, Coles, Cartwright, Fox, and others, bending all their forces to the work, and seconded by the powerful moral influence of the support of the College of Surgeons, what may we not expect from the dental profession of England? I would say to American schools, 'go thou and do likewise,' not neglecting the practical manipulation branch in which you as operators have no peers.

This neglect on the part of our English co laborers, is but an oversight which their strong common sense will right itself in time, and then my friend unless the irrepressible Yankee looks well to his laurels, they will be found on this side of the Atlantic

So far the American dentist in Europe has borne a most enviable reputation. So the '*Dentiste American*,' on the Continent was '*carte blanche*' to a full and successful practice even to a man of no ability, and whose best trait was American, although a graduate from a barber shop, or a three months' apprenticeship in a dental laboratory. This army of impostors have done their work, and a revolution is the legitimate result. They are being put down by the people who have their eyes opened to the fraud and impositions, and their pockets closed. The harvest is about past, and now we must succeed here as in America, by dint of hard work and honest conscientious successful operations. Of this class there are but few now in Europe, but they are gradually taking the lead and receiving the recognition that they deserve. All honor to them for all temptations to fall in the old time worn groove of slack operations 'all for gold.'

I have in these few lines endeavored to give you, although in a very feeble manner, an outline of the present status of our profession in Europe; and I trust that the retrograde conditions of fellow operators and countrymen in Europe, and the progressive state of the English professor may prove a spur and give double incentives for active, earnest, energetic effort to our educators in the United States.

Let animosities, jealousies and envies be put aside, and all put their shoulders to the wheels of our car of improvement, taking 'Professional Progress' for their motto."

Our Berlin corresponding Fellow, writes:

"I am sure words would fail me should I attempt to express my pride and gratification as I mark the excelsior movements of our profession. It is through such efforts as your honorable body are making, and the convocations of our scientific colleagues throughout America and Europe that we are being felt as a power, and recognized among the medical fraternity and the scientific and cultured of every land as benefactors to the race, ranking second to none. Such should be our positon, for is not suffering humanity through all the horrors of oral diseases turning hopeful eyes to us? and is not the family dentist as great a boon as the family physician.

We have grave responsibilities; we are exciting the criticism of those who never dreamed of recognizing us as of their fraternity, but as our artistic and scientific skill betrays itself, not only in manipulations, but in the scientific researches, discussions, mechanical appliances and inventions for the advancement of our profession, the cordial grasp of recognition, and the still more flattering desire to learn of us, bring us into the conscious realization that our efforts are not in vain.

All honor to the American Academy of Dental Surgery, because it is one other heroic flag unfurled, significant of progress and strength.

I regret that I cannot be with you, but I am at work in my Berlin office, and when I tell you there are only eighty-nine dentists in this city of nearly one million inhabitants, I am sure you will say, 'stay where you are.' I wish I had time and the inspiration to write 'an article' for you, that I might exercise my new dignity as corresponding Fellow; but both of these all essential commodities fail me.

We had our Continental convention in August last, and are congratulating ourselves. But I read the dental news from 'home,' with something of the sense of longing that I used to have in China, when myself and partner were the only available representatives, and our discussions and experiments in office and laboratory constituted the dental clinic and dental convocation in the *orient*; all the official honors of the time and occasion being vested in ourselves. How we read up the dental journals, and send for all the latest improvements, and emulate each other in delicate skill and careful efforts to excel, jealous lest half the world lying between us and our colleagues, should not keep even step with the onward march.

Something of that old yearning stirs me as I read your letter and you speak of your meetings, but the post of duty is here in this Capital City of Germany.

As a people, the Germans have no idea of our profession, and must be educated up to the proper appreciation of its importance. Some leading minds in the medical and surgical department have recently assured me of their pleasure and surprise at the wonderful developments in our line.

When secured as patients, I have never found a more appreciative and grateful class of people than among my practice here."

With best wishes for the prosperity of the Academy, I remain very truly,

Yours Fraternally,

Wm. C. Eastlacke, D. D. S.

Our corresponding Fellow, Dr. Geo. H. Chance, Portland, Oregon, says:—

"It is to me a source of gratification to know that while one is trying to do what he can for the elevation of the profession in this far western section of our country, his brethren east who are laboring under more favorable circumstances, can stop for a moment to send words of cheer and recognition to those who are engaged in 'Missionary Work.'

Such action will help very much to stimulate and strengthen the 'spinal column' of those of us who are trying to do what we can to advance the standard of professional excellence amongst us. It would afford me great pleasure to be with you did circumstances permit. I shall have to forego that pleasure for the present. Wishing every success and prosperity to the Academy, I will try and 'dot down' a few thoughts for your consideration on some future occasion."

An act to regulate the practice of dentistry in the State of Georgia, was received from Dr. Geo. Paterson, President of the Georgia State Dental Association.

A number of gentlemen were then elected active and corresponding Fellows of the Academy.

The subject of holding the July meeting in Philadelphia, (which will occur on the fourth Tuesday, the 25th,) was discussed, and it was finally agreed upon, and the corresponding secretary instructed to inform all Fellows at home and abroad of the fact. By the letters already received, it is thought that most of the States will be represented in this Congress. A goodly number of the Fellows residing in Europe, have already signified their intention to be present. A liberal invitation to the profession will be extended.

The President then made a few remarks. He desired to congratulate the Academy upon the good work it was doing. He said the Academy had recently given birth to its first child (association,) which had been christened "The New York Academy of Dentistry," a charter for which had been already obtained. He thought there was no reason why this Association should not aid in forwarding the work so well commenced by its parent. This the Doctor said was only the beginning of the work. Like organizations in other cities would be formed through and out of the American Academy, all of which would help restore dentistry to the parent tree,—medicine.

He trusted ere long that every medical college and hospital will have a special department for instruction of dental diseases as for those of the eye, throat or ear. Such he said is the end and aim of the "American Academy of Dental Surgery," and from the encouragement which we have already received, we are confident of our ability to succeed in carrying out our design. He said he could see no reason why dentistry should be separated from medicine, any more than surgery or any of the other specialities. He thought the time had come to restore this branch which had been so long lopped from the parent tree, and which experience shows should properly be restored to its original position. The paper of the evening, by John C. Storey, M. D., D. D. S., was then read and discussed by the Fellows, when the Academy adjourned to the fourth Tuesday in March.

ARTICLE V.

Alumni Meeting.

Pursuant to notice, a meeting of the Graduates of the Baltimore College of Dental Surgery was held on the 6th of March, in the lecture room of the College Building, S. E. Corner of Eutaw and Lexington Sts., with the object of forming an Alumni Association.

About one hundred of the graduates assembled, quite a number coming from other States and cities.

The meeting was organized by the call of Dr. S. J. Cockerille to the chair, Dr. F. J. S. Gorgas acting as Secretary.

The balloting for the officers of the Association for the ensuing year resulted as follows:

Dr. S. J. Cockerille, of Washington, class of '53, President; Dr. T. A. La Far, of Baltimore, class of '60, First Vice-President; Dr. S. D. French, of Troy, New York, class of '54, Second Vice-President; Dr. T. H. Davy, of Baltimore, class of '74, Recording Secretary; Dr. Wm. B. Wise, of Norfolk, Va., class of '74, Corresponding Secretary; Dr. Wm. H. Hoopes, of Baltimore, class of '56, Treasurer. Executive Committee, Drs. F. J. S. Gorgas, Jas. H. Harris and Wm. H. Hoopes.

Dr. Cockerille on assuming the chair, made some interesting remarks on the present strength and dignity of the profession, the necessity for organization, and the claims of their *alma mater* upon those she sends forth to practice the dental art.

A committee, consisting of Drs. J. B. Hodgkin, S. D. French and W. A. Mills, was appointed to draft a Constitution for the Association.

On invitation of the President, Dr. Wm. H. Hoopes addressed the meeting on the subject of his relations with the Goodyear Rubber Company concerning celluloid.

On motion, the members of the present graduating class were elected members of the Association.

A constitution was submitted by the committee above named, and was unanimously adopted. A committee was then appointed to draw up by-laws, consisting of Drs. Gorgas, Wilkerson and Wise, the report of which was also unanimously adopted.

Letters from Drs. W. W. H. Thackston, of Farmville, Va.; Wm. H. Morgan, of Nashville, Tenn.; Samuel Welchens, Lancaster, Pa.; George F. Keesee, Richmond, Va.; Wm. Farmer, of Abingdon, Va.; Dr. Jno. W. Holt, of Goldsboro, N. C.; Dr. F. H. Rehwinkel, of Chillicothe, Ohio, and Dr. N. M. Burkholder, Va., were read, expressing their regrets at not being able to attend, and their wishes for the success of the organization.

On motion, it was resolved to invite Dr. William H. Thackston, of Farmville, Va., to address the Association at its next annual meeting.

The constitution provides that the body be called the "Alumni Association of the Baltimore College of Dental Surgery," and is as follows:

CONSTITUTION.

ARTICLE I.—This Association shall be called "THE ALUMNI ASSOCIATION OF THE BALTIMORE COLLEGE OF DENTAL SURGERY."

ARTICLE II.—The officers of this Association shall consist of a President, one or more Vice-Presidents, a Recording and a Corresponding Secretary, a Treasurer, and an Executive Committee, which shall consist of three members.

The President, Vice-Presidents, Secretary and Treasurer, shall be elected to serve for a period of one year, or until others are elected to fill their places.

The Executive Committee shall be appointed by the President annually.

The duties of the President, Vice-President, Secretary and Treasurer, shall be such as are usually performed by like officers in other organizations.

It shall be the duty of the Executive Committee to provide a place of meeting for the Association; to audit the accounts of the Treasurer, and to perform such other duties as may be required of them by the President.

ARTICLE III.—The object of this Association shall be to encourage and promote the association of dentists with each other; to stimulate free interchange of opinion; to advance the Science of Dental Surgery and to keep alive the love we bear to our *Alma Mater*.

ARTICLE IV.—These laws may be amended at any annual meeting by a two-thirds vote of the members present and voting.

ARTICLE V.—The graduating class of each session, (who have passed examinations), shall be considered as members of this Association.

BY-LAWS.

ARTICLE I.—The regular annual meeting of this Association shall be held on the day of the Annual Commencement of the Baltimore College of Dental Surgery, at 10 o'clock A. M. Special meetings may be called at such other times as the President may deem necessary.

ARTICLE II.—Every active member of this Association shall pay annually the sum of one dollar, as dues to meet current expenses.

Article III.—Any alumnus of the Baltimore College of Dental Surgery may become an active member of this Association on the payment of the annual dues.

T. H. Davy, D. D. S.,
Recording Secretary.

ARTICLE VI.

The Thirty Sixth Annual Commencement of the Baltimore College of Dental Surgery, was held at the Academy of Music, Baltimore City, on Friday evening, March 10th, 1876, in the presence of a large and brilliant audience. The stage was occupied by the Faculty, Graduating Class, a number of the Professors of the several medical colleges of the city, and invited guests. Prof. Wernig's Fifth Regiment Orchestra furnished a number of select pieces of music.

The exercises commenced with prayer, by Rev. Dr. J. B. Purcell. An announcement of the present condition of the College, followed by the names of the graduates, was made by the Dean, after which the degree of "Doctor of Dental Surgery" was conferred upon the following students by Prof. F. J S. Gorgas :

Subject of Thesis.

Rufus Calvin Bowman, Virginia.—Treatment Preparatory to Filling Teeth.
George Crowther, *South America.*—Mechanical Dentistry.
Herbert E. Dennett, *Massachusetts.*—Lining the Walls.
John P. Dennett, *Massachusetts.*—Mechanical Dentistry.
Edward P. Doremus, *Louisiana.*—Dental Caries and its Causes.
William Henry Dwinelle, *New York.*—Gold.—Its Relation to Dentistry.
Richard Atwell Fox, *Virginia.*—Development and Structure of the Teeth.
James Allen Glenn, *North Carolina.*—Circulation of the Blood.
Elise von Heyden, *Prussia.*—Secondary Dentine.
Samuel Kimmell, *Maryland.*—Nitrous Oxide Gas.

William Samuel Krebs, *Maryland.*—Anæsthetics and their Application to Dentistry.
Ezekiel Daniel Margary, *West Indies.*—The Extraction of Teeth.
Brainerd T. Olcott, *New Hampshire.*—The Effect of the Diet upon the Teeth.
William La Fayette Seigler, *Florida.*—The Teeth.
Wharton Hume Shine, *Florida.*—Digestion.
Augustus Wilson Sweeny, Jr., *Maryland.*—The Relation of Dentistry to Medicine.
William Oscar Thrailkill, *Kentucky.*—Injuries to the Teeth and Soft Structures by Mechanical Violence.
Otho Frank Welsh *Virginia.*—Mechanical Dentistry.
Gurdon F. S. Wright, *South Carolina.*—The Bicuspids.

The Valedictory Address was then delivered by Prof. E. Lloyd Howard, M. D., followed by a Class Address by James Allen Glenn, of North Carolina.

The exercises closed with the benediction by Rev. Dr. Purcell. The number of matriculants during the session of 1875–76, was *fifty-two.* The Spring session of 1876, will commence on the 1st of April and continue until the last of June following. The Winter session will commence on the 17th of October, 1876, and continue until March 1877.

SELECTED ARTICLES.

ARTICLE VII.

Filling Teeth with Tin.

BY H. L. AMBLER. M. D., D. D. S.

Read before the Ohio State Dental Society, Dec. 2nd, 1875.

For years tin foil has been admitted to be a good material for filling the temporary teeth, and we take for granted that none deny it at present; but we think that it is just as good or better for filling the permanent teeth under certain conditions. Up to the age of fifteen, and sometimes longer, we find in many cases, that the teeth are quite soft, and in some of these mouths the fluids are so viscid that the preparations of oxy-chloride will not last long, (this condition we have more often found among the Jews and Germans;) then we would use tin, even in proximal and labial cavities of incisors, because as the patient grows older the tooth structure generally becomes harder, then the fillings can be removed and good saving operations made with gold.

In correcting cases of irregularity where the teeth are of soft structure, and also decayed more or less; or when you are limited for time and means, you will find tin a valuable material for filling. When there is not good calcification of tooth structure, a condition often found in the six year molars, we would also recommend it. In proximal cavities, when the decay is white and soft, we would separate freely from the palatine or lingual side; and in any cavity in any tooth attacked by this species of decay, we claim that tin will make a saving filling. Professor Watt says: When two metals are so situated in the mouth that the mucous membrane forms a connecting conductor, and the fluids are capable of acting on one of them, galvanic action is established sufficient to decompose any of the binary compounds contained in these fluids; the liberated nitrogen, hydrogen and oxygen form ammonia and then nitric acid; you also have in the mouth, air, moisture and decomposing nitrogenous food to assist in its production. White decay, the most formidable variety known, is produced by nitric acid, and here you find all components of the teeth are acted on and disintegrated, as far as the disease extends.

Dr. S. B. Palmer says: Tin not only arrests decay mechanically, but in frail, chalky structures, acts as an anti-acid element in arresting the electric current set up between the tooth bone and the filling material.

Some operators have advocated filling teeth with a mixture of tin and gold in the same cavity, allowing both metals to be exposed to the fluids of the mouth; they claim that fillings can be made quicker, that they are not as subject to thermal changes, and that they can be inserted nearer the pulp without danger, than when gold alone is used; all of which three claims are entirely met by only using the tin. One of these writers says: That the mixture will preserve the tooth quite as well as an entire gold filling, making no conditions of restrictions as to tooth substance or location of cavity.

Thus far we cannot see any advantage which this mixture has over the clean pure tin or gold. We have lately seen a case of a superior bicuspid filled in posterior proximal and masticating surface; about one year after filling, the tooth split between the cusps; we removed the palatine cusp, including about one third of that side of the root; here we found that calcification of the pulp had ensued, owing to the close proximity of the tin filling. It has been known for years that tin would be tolerated in large cavities very near the pulp without causing any trouble. We would not recommend it for filling root canals, for should there be any leakage, the tin will oxydize, and you may have infiltration into the crown causing discoloration; this is the more noticeable when the crown is filled with gold. In many mouths it does not oxydize, but preserves a clean grayish appearance, but should the surface oxydize we know of no bad results therefrom. Where the fillings are subject to much attrition they wear away soon or late, but this is not a great drawback, for they may generally be easily and quickly replaced, and from the concave shape which they assume, the patient is liable to know when a large amount has been worn away, that portion against the walls and around the margins being the last removed, thus preventing further decay as long as there is any reasonable amount of tin left; neither does it expand or contract (like some base mixtures) enough to produce leakage along the margins. On account of its softness and ductility, tin may be driven into or on to the dentinal tubuli, where they are a little rough, so as to completely close them to outside moisture, and you may often see in burnishing a filling by hand force, when it is perfectly dry, that the tin has taken such a hold in or on the dentine, that to remove it requires a sharp cutting instrument. For filling by hand pressure, use instruments with square ends and sides, with shallow serrations. For filling with the mallet, use instruments with medium serrations, and a steady medium blow with a four or six ounce mallet. Any instrument turned at any angle which will best reach the cavity, is admissible, but with the above modifications.

In all operations you must have absolute dryness generally by the use of Barnum's rubber-dam.

If the cavity is of a good general retaining shape, all very well, but if it is not, then cut some opposing angles or pits, making them somewhat larger than for filling the same cavity with gold. The extra tough foil No. 18, manufactured by S. S. White, retains a bright clean surface and does not lose its good working qualities, even after much exposure to the atmosphere, and when well condensed into a filling either by hand or mallet force, it stays up to the walls of a tooth and actually makes a tight filling, with a surface which will stand the wear from three to ten years, depending upon the size and location of the filling. Strips of this foil from two to four thicknesses can be welded together by mallet or hand, and will cohere to the same extent, or better than semi-cohesive gold foil ; thus if there is only one or two walls of a cavity left, you can bring out your filling to any practical or desired contour.

Fold up the tin into strips of different widths and lengths, according to the size of the cavity, but for large crowns or proximal cavities, these strips may be folded into mats or rolled into cylinders, enabling you to make a quicker operation, but much more force is necessary in condensing ; whereas, with the strips you can fill any kind of a frail tooth, and at the same time have the filling all one solid mass. After the cavity is full go over the tin thoroughly with mallet or hand force ; cut down crown fillings with the engine bur or corundum point, and proximals with sharp cutting instruments and strips of sand paper, after partially cutting down, giving the filling another condensing, then a final trimming and burnishing; by this means you secure a hard mouth surface and complete the operation.—*Dental Register.*

EDITORIAL, ETC.

Exhaustive Effects of Dental Practice.—In a paper on this subject, read by John Allen before the American Dental Association, he contends that there is no profession or calling more arduous, or that taxes the mind and nervous system more severely than a heavy dental practice; and that the toil is often rendered doubly irksome by personal contact with patients whose nervous temperaments exhaust the vital force of the dental practitioner at a rapid rate. He gives the following melancholy record of those who died insane, as presenting a sad commentary in connection with this subject: Drs. L. Parmly, Weir, Wells, Snow, Flagg, Barrett, Blakesly, Griffin, Westcott, Franklin and Whitney, and says that to this list might be added many others of those who have lived and died in our own day. And in view of the facts presented, Dr. Allen thinks a spirit of inquiry should be aroused in our profession with reference to the cause of this peculiar fatality among our members. First, is it owing to the exhaustive nature of our calling? Or second, is it due to a course of habits, such as an excessive use of narcotics or stimulants, which an overworked brain cannot withstand? Or third, to a want of daily exercise in the open air? He recommends that this matter be brought before State and local societies with a view of eliciting further information upon this subject, and in order to bring the question in a tangible form before the Association, he offered the following resolution:

"*Resolved*, That a committee of three be appointed whose duty it shall be to collect facts with reference to the subject matter here presented, and also the best means of preserving the physical and mental capacities of dental practitioners," which was done.

Dental Education.—Dr. S. H. Cartwright, of London, upon this subject remarks:

"The only true reform must consist in higher and more perfect education, and there need be no fear lest dental surgery should not take its position immediately, and a majority of those who practice the specialty become fully qualified practitioners. The manufacture of mechanical substitutes for the natural dentures, I would gladly relegate to a body of skilled mechanicians who should hold a similar position to that of the ordinary manufacturer of surgical appliances; the instruments being made and adjusted, subject to the supervision of a surgeon who, especially in dental practice, should have a competent knowledge of mechanics, as a mere machinist might fail in that æsthetic, artistic and anatomical perception which is necessary in cases of deformity like those alluded to here.

But this division will not achieve all that which is to be desired; for those who are ambitious for a higher professional and social position must enter their profession a portal, the entrance to which should imply a liberal education, both general and special; and this is to be found in the diploma of a member of the Royal College of Surgeons, to which it is to be regretted, that a special degree in dental surgery was not formerly appended. One of our most distinguished and celebrated surgeons lately said, while speaking authoritatively in the name of the Royal College of Surgeons, that that body would be only too glad to receive the best men of that specialty into his fold.

I trust that ere long, every general hospital will have a special department for instructions in dental diseases, as for those of the eye, throat or ear.

I am certain that the attempt to separate the dental profession of surgery from that of general surgery would be a great mistake. In America such a mistake has been made; and we find that the children are now seeking a connection which the parent justly disclaims, save on the condition that they educate themselves as fully qualified practitioners.

Finally, if specialists are ambitious of the status granted to their medical confreres, they have only to educate themselves as these are educated. Let them dictate a large and more liberal view of their calling, banish all intestine bickering. Let them advance schemes for the common weal apart from the mere personal interests and the gratification of personal ambition. Men who now hold aloof from special fields, and the general body of those who practice the specialty adopted, would then join the van of those who elevate the good name and support the fair fame of their profession in word and action."

MONTHLY SUMMARY.

Radical Cure of Salivary Fistula.—J. H., aged ten years, suffered from an abscess beneath the right ear, at the lower margin of the parotid gland, and applied to a physician for treatment. A free incision was made, pus evacuated, and the patient relieved. The incision did not heal completely, leaving a fistulous opening at the most dependent portion of what had formerly been an abscess, and an almost constant discharge was the result.

This condition continued for seven years. Patient applied to me for treatment one month ago. On examination I found a salivary fistula, opening externally and immediately posterior to the angle of the inferior maxilla. Steno's duct had been divided at a point corresponding with its exit from the parotid gland, and there had been formed an artificial channel leading from the gland downward to the lowest part of the incision, as shown by the cicatrix.

My first effort was to explore the duct of Steno. I passed my probe into the duct to within about three-fourths of an inch of the fistula, where I met an obstruction. Beyond this point the duct had been obliterated. I then cut down, from without at the point of the probe. I then passed a needle, armed with a strong silk thread, from the opening just made in the cheek to a point about a line above the fistula, penetrated the artificial channel above the fistula, and, turning the point of the needle downward, brought it out at the fistula, allowing the thread to remain as a seton. In this way I hoped to make an artificial duct from the fistula to the artificial opening just made. After thirty-six hours I removed the seton and passed a small-eye probe along the track of the seton from the artificial opening to the fistula, then armed the probe with a silk thread, having a knot in one end, drew the probe backward and out, leaving one end of the thread on the outside of the cheek at the artificial opening, after having buried the knot at the other end in the artificial channel above the fistula, and then closed the fistula with a suture externally. After the artificial duct from the fistula to the artificial opening in the cheek had been sufficiently established to permit the saliva to flow out freely upon the cheek at the artificial opening, I was ready for the next step in the operation. I then moved the fistula forward on the cheek and closed the fistula behind the angle of the jaw. I wanted to know certainly that an artificial duct had been established from the fistula to the opening made in the cheek before I proceeded further, else I should have brought the thread forward through the natural duct and finished the operation.

I next passed my probe backward through the duct from the inside of the mouth to the artificial opening in the cheek, armed the probe with a silk thread, and again withdrew it, drawing the thread through the natural duct, leaving one end of the thread on the inside of the cheek suspended from the natural opening of Steno's duct, opposite the second upper molar, while a knot in the other end of the thread retained that end in the artificial opening. I then closed the opening in the cheek with plaster, and the saliva has since been flowing out at the natural opening. Both external openings have healed. The saliva readily followed the thread, the thread acting as a conductor, hence I preferred it to silver wire. The cure is radical.—*Clinical Record.*

Morphia in Neuralgia.—Mr Spencer Thompson writes to the *Lancet* on the subjectof neuralgia :—

Even phosphorus, we know, will, after a time, lose its power in some obstinate cases of neuralgia, at all events its power of giving rapid relief; and then it is that the invaluable hypodermic administration of morphia comes to our aid. This remedy, and its mode of administration, are too well known to require comment here; but it is far from being as generally employed as it ought to be. This, perhaps is due to various causes, but of these I believe the principal are, the means of administration not being always readily available, and the objection of patients to the pain consequent upon the use of coarsely constructed instruments. The first of these objections I have endeavored to meet by the use of a very portable hypodermic apparatus, enclosed in a metallic case, with ample supply of needles, and the great desideratum, an always moist and efficient piston ; and by always carrying a supply of gelatine discs. The second objection is met by the use of very fine steel needles only. The discs, which contain one-sixth of morphia in each, are a very safe and efficient dose for most cases, although in some it may be well to begin with the less amount, and in many it may be advisable to increase the dose considerably, half a grain, or even double that amount. I may here give it as the result of a very large experience in the hypodermic administration of morphia, that concentrated solutions are the reverse of advantageous. In the first place, they are not so safe as the more dilute; and, in the second, they do not act so quickly and agreeably. The usual strength I employ is one grain of hydrochlorate of morphia in forty minims of water, rarely in thirty. The slight increase of bulk is of no consequence, and in administrations I can count by the thousand, I have never seen the slightest bad consequence, in the way of abscess or otherwise, result to the patient. —*Med. and Surg. Reporter.*

A New Solvent for Salicylic Acid.—M. Rozsyay states, in a communication to the *Pharm. Centralhalle,* that he has found in the sulphite of soda an agent which increases the solubility of salicylic acid, as well as its antiseptic properties. One part of salicylic acid, with the addition of two parts of sulphite of soda, dissolves in fifty parts of cold water, and forms a clear solution, which is not in the least degree irritating to an open wound. As a disinfectant he uses one part of the acid with from one to two parts of the sulphite of soda in from fifty to a hundred parts of water.—*Med. Chir. Centralbl.*, 1874, 26.—*Rundschau,* Aug., 1875.

How to Prevent Chloroform Asphyxia.—Dr. J. Fleiberg. (*Berl. Klin. Wochenschr.*

His plan is to dislocate the inferior maxillary bone forward whenever any asphyxial symptoms make their appearance. The best way of producing this dislocation is to stand behind the reclining patient, put both thumbs behind the symphysis and the index fingers on the posterior edges of the rami of the bone, then grasp the maxilla firmly and drag it directly forward. If the patient be under the influence of the anæsthetic—and then only it is necessary to resort to this procedure—the condyle will move forward with a perceptible motion and the entire bone is displaced. As soon as this is done the patient takes a long breath and respiration proceeds without any further difficulty as long as the parts remain in the same position. The author has employed this procedure in more than a thousand instances and has never failed to achieve the desired purpose namely, the use of chloroform without any unpleasant complications. He believes that the root of the tongue and the epiglottis are dragged forward and thereby the occlusion of the larynx and the consequent asphyxia which is due to the weight of the tongue, are obviated.

The same method has been in constant use by Esmarch since 1866; and Langenbeck employed it constantly during the late Franco-German war, and never lost a case from the effects of chloroform.—*Chicago Med. Jour. and Examiner*, Jan., 1876.

To Retard the Setting Gypsum.—It has been found that ground plaster sets most speedily when it contains twenty per cent. of water. An excess of water, however, causes the solidification to be considerably retarded. There are several other substances which, when added, conduce to the same result; such as gelatine, glycerine, gum, common salt, marsh mallow, etc. Carbonate of lime is said also to be an efficient means for preventing the rapid setting. It is often useful when employing plaster-of-paris to prolong the time required for it to harden, and it is convenient to know how to effect that result. To the foregoing it may be appropriate to add, that Mr. Gaudin, of Paris' has lately patented a method of treating old plaster that has been broken up and condemned, which fits it again for renewed use, and is not inferior to its original calcined condition. After it has been roasted the second time, and rendered anhydrous, old plaster sets too quickly for common purposes. By calcining the rubbish and mixing it with some of the saline solutions instead of pure water, this objection is prevented. Alkaline solutions are best, and of these a solution of carbonate of soda is preferred because it is the cheapest. When treated in this manner, such plaster, will harden by the end of a couple of hours, and possess all the useful properties of fresh gypsum,—*Druggists' Circular.*

Eczema Produced by Tincture of Arnica.—Dr. Whittaker has (*Ohio Clinic*) lately encountered several cases illustrating the evils of the local application of tincture of arnica. One young man with orchitis applied it, and came to Dr. Whittaker with an extensive and profound eczema, which lasted for three week's Another man, having let a ten-pin ball fall upon his toes, applied it to relieve the pain, and had a violent eczema, which was not cured for two weeks. At the society at which this was read, Dr. Longworth mentioned the fact as something peculiar about this drug; the majority of persons may use it with impunity, but it will now and then act as a virulent poison, producing an eczema not limited to the seat of its application, but which becomes universal, and is often very obstinate to treatment.—*Atlanta Med. and Surg.*

A New Pair of Siamese Twins.—At a recent meeting of the New York Pathological Society, Dr. John E. Blake, presented a pair of infants joined after the fashion of the Siamese twins. The specimen was merely loaned to him by a gentleman who had purchased it for the Anatomical Museum at Sweden. The twins (females) were born in Tobasco, a town in Mexico, are reported to have lived nine days, and to have weighed 15 pounds. The mother was an Indian and the father a mulatto. One twin showed the characteristics of the former race and the other of the latter. In this connection it is well to state that the *Student's Journal and Hospital Gazette* (London, Feb. 12) reports a similar case. "The wife of a carpenter residing in Hastings was delivered of twins (girls,) who were united by a cord or ligament of flesh drawing both breasts together." The infants, who were well developed and possessed pretty features, did not survive their birth. The case has attracted some attention among medical men in that place, and photographs of the twins have been taken.—*Med. Record.*

Death from Ether.—Dr. Finnell presented the larynx of a patient who died at the Homœopathic Hospital while he was undergoing an operation for the removal of necrosed bone from the superior maxilla The larynx was œdematous. The patient was the subject of necrosis of the superior maxilla, and an operation was deemed advisable. Ether was administered, and an incision made through the lip, extending in a semicircular direction over the superior maxilla. At this stage of the operation, the patient became cyanotic, and soon died. The patient was immediately held up by his heels, with a view of clearing the trachea of blood, as it was suspected of being the cause of the difficulty, but this measure proved of no avail. The time which elapsed between the commencement of the administration of the ether and the death of the patient was ten minutes. Two and a quarter ounces of ether was the amount used, and was the purified ether manufactured by Dr. Squibb.

Autopsy.—No blood could be discovered in the trachea. The heart weighed six ounces, and was fatty. No other lesions were found anywhere. A strong odor of ether emanated from the brain.—*Proceedings of N. Y. Pathological Society.*

Solvents for Rubber.—The proper solvents for caoutchouc are ether (free from alcohol,) chloroform, bisulphide of carbon, coal naphtha, and rectified oil of turpentine. By long boiling in water, rubber softens, swells, and becomes more soluble in its peculiar menstrua; but when exposed to the air, it speedily resumes its pristine consistence and volume. Industrially, the etherial solution of caoutchouc is useless, because it contains hardly more than a trace of that substance. Oil of turpentine dissolves caoutchouc only when the oil is very pure, and with the application of heat; the ordinary oil of turpentine of commerce causes india-rubber to swell rather than to become dissolved. In order to prevent the viscosity of the india-rubber when evaporated from its solution, one part of caoutchouc is worked up with two parts of turpentine into a thin paste, to which is added half part of a hot concentrated solution of sulphuret of potassium in water; the yellow liquid formed leaves the caoutchouc perfectly elastic and without any viscosity. The solutions of caoutchouc in coal tar naphtha and benzoline are most suited to unite pieces of caoutchouc, but the odor of solvents is perceptible for a long time. As chloroform is too expensive for common use, sulphide of carbon is the most usual and also the best, solvent for caoutchouc. This solution, owing to the volatility of the menstruum, soon dries, leaving the latter in its natural state. When alcohol is mixed with sulphide of carbon, the latter does not any longer dissolve the caoutchouc, but simply softens it, and renders it capable of being more vulcanized. Alcohol also precipitates solutions of caoutchouc. When caoutchouc is treated with hot naphtha distilled from native petroleum or coal tar, it swells to thirty times its former bulk; and if then triturated with a pestle and pressed through a sieve, it affords a homogeneous varnish, the same that is used in preparing the patent waterproof cloth of Mackintosh. Caoutchouc dissolves in the fixed oils, such as linseed oil, but the varnish has not the property of becoming concrete on exposure to the air. Caoutchouc melts at a heat of about 256° or 260°; after it has been melted, it does not solidify on cooling, but forms a sticky mass which does not become solid even when exposed to the air for months. Owing to this property, it furnishes a valuable material for the lubrication of stopcocks and joints intended to remain air-tight and yet be movable.—*Jour. of Applied Science.*

A Third Dentition at the Age of Seventy-Three—M. Echerac relates in the *Gazette des Hospitaux*, the remarkable case of an old gentleman, aged seventy-three, who, after the manifestations of nervous symptoms for some time, and an abundant salivation, exhibited in his upper jaw, which had long been dismantled of teeth, some fine ones projecting about two millimetres beyond the edge of the gums. They were six in number—four incisors, one canine, and one small molar. These teeth were neither very white nor very strong, but formed an excellent substitute for those lost. Van Helmont relates a precisely similar case occurring at the same age.

How to Remove Stains from Steel Instruments.—The very best way to clean a stained steel knife is to cut a solid potato in two, dip one of the pieces in brick dust such as is usually used in knife-cleaning, and rub the blade with it.

Toothache.—M. J. Eley, M. D., in Medical and Surgical Reporter says, you will do something for the afflicted and possible preserve the morals of many, by saying to your readers that acetate of lead, applied on moistened cotton will relieve most cases of this, Burns' " hell of diseases." As fast as it dissolves spit out, and re-apply. I think it fails less than any other remedy I have prescribed.

Treatment of Diphtheria.—Dr. J. S. Benson writes to the Canada *Lancet*:—I take the liberty of placing before your readers the treatment which has proved in my hands not only very efficacious, but almost a complete specific. For the last twelve or thirteen years we have have had unequaled opportunities of watching the disease in all its stages, from the mere fibriny whiteness of the palate and tonsils to the complete obliteration of the palatine arch by false membrane internally, and the enormously enlarged sub-maxillary and parotid glands externally, which sometimes suppurated; death resulting in some cases from the mechanical obstruction to respiration, and in others from pure blood-poisoning as manifested through the nervous system; the local symptoms in the throat having to a great extent disappeared, leaving both food and air passages perfectly free and open.

When called to a case of diphtheria, I first of all clear out the bowels by a dose of calomel, followed in a few hours by a little senna or Rochelle salts. If there is much heat of skin, as will be shown by the thermometer, a warm bath will give very great relief; and after the bowels have been freely acted upon I commence with the chlorine water. To patients from ten to twelve years and upward I give one tablespoonful; from six to twelve, one dessert-spoonful, and under six one teaspoonful, every three hours. In all cases it should be given without any addition of water. A towel saturated with cold spring-water is to be applied to the throat and neck, the cold renewed as the towel becomes warm. The patient is to have small pieces of ice on a plate by the bedside, a piece of which is to be kept constantly in the mouth. The diet should be nutritive; beef tea, milk, eggs, and such like; but no stimulant is required, unless the prostration should be alarming. In some cases which are mild, and occur in young children, a mixture containing tincture of iron, chlorate of potash, and dilute hydrochloric acid, may suffice to cure, but in no case can the same dependence be placed in it as chlorine water.

Notwithstanding the opinions of Greenhow, Brettonneau, and others of equal celebrity, as to the efficacy of caustics and gargles as topical agents, I must humbly beg leave to differ entirely with them, and disapprove in *toto* of such proceedings. I most assuredly believe them not only to be of no value, but in many cases positively injurious. If we look upon diphtheria as a blood-poison, which it undoubtedly is, we must, if possibie, find an antidote and administer it. I believe we have it in the above mixture. Can we expect to cure it by a little nitrate of silver locally applied, and giving a little tonic medicine? Here is a disease, a poison in the blood, manifesting itself and increasing so rapidly in a part the free passage through which it is indispensable to life, which, if not arrested, will in a few hours place the patient beyond the reach of human aid. It is not a disease which we can allow, as some fevers, to run a definite course, merely supporting the strength and guiding it to a certain turning point. Such would, I think, be a dangerous experiment in diphtheria.

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